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ACUTE TONSILLITIS

AN ACCOUNT OF SOME RECENT STREPTOCOCCAL INFECTIONS*

BY

F. E. CAMPS, M.D.

PATHOLOGIST AND ASSISTANT PHYSICIAN TO CHELMSFORD AND ESSEX HOSPITAL

At the end of 1933 it became obvious that there was prevalent in the Chelmsford area a definite epidemic of tonsillitis, which was carrying with it a toll of loss of work and complications in excess of the normal. On investigating the bacteriology of the throats of some of the cases the constant feature was the presence of the haemolytic streptococcus. This led to a more thorough search for other conditions which might be due to the same organism, and it then became evident that streptococcal infections were far more prevalent than had been the case in the previous year. The majority of these cases could be traced directly or indirectly to a throat infection. At the commencement of 1934 this epidemic increased in magnitude and in virulence, and it is still (November, 1934) active, though less marked.

As is mentioned later in this paper, the question arose as to whether there was more than one type of haemolytic streptococcus occurring among the cases, and the evidence has shown that this was so. (Typing of the organism recovered from four cases showed four different types.)

It is not suggested that streptococcal infection is not always occurring, but that the condition has been more prevalent locally during the last fourteen months. This has drawn attention to the menace which it presents, not only to individuals but also to institutions. It is proposed, therefore, to discuss the epidemic of streptococcal infections together with their complications, to give examples of cases, and to put forward suggestions as to treatment and prophylaxis. For brevity, scarlet fever has not been included in the discussion, although it appears that it is merely a particular form of streptococcal infection.

Aetiology

There is no doubt that the causative organism is the beta-haemolytic streptococcus—*S. pyogenes*. Various workers have demonstrated that there are several types of this organism, and Griffith has succeeded in defining about thirty serological types.

The manifestations can be said to be local, bacteriaemic, and toxic, and the effect upon the individual is definitely dependent, first, upon the virulence of the infecting organism, and secondly, upon the resistance of the individual himself. There is at least a temporary acquired immunity following an attack, but it is reasonable to assume that, although immunity to one type may be obtained by an infection with that type, yet no immunity has been produced against infection with another type. This may well account for the frequency of recurrent attacks in the same person which have occurred during the recent epidemic, and also for the fact that the second attack often shows characteristics unlike that of the first. On the other hand, repeated swabbings of the throat during treatment have demonstrated that the organism is extremely persistent, and although it is possible that reinfection with another type may occur, a second attack may be merely a relapse or recrudescence of the first attack in another form.

The mode of infection would appear to be by the droplet route, and this is made more probable by the fact that a large number of apparently healthy people are found to be carrying this organism in their throats. It should be observed here that it is recognized that, normally, haemolytic streptococci may be obtained from the throats of healthy people, but it is not usual in such a high percentage of persons as in the present instance. Other modes of infection may be suggested, such as milk, water, bathing pools, linen, and hands, but in such cases as have been observed it was difficult to correlate these routes, except in the last case, which is, of course, a form of droplet infection.

The method of isolating the organism employed in the laboratory has been that recommended by Griffith, using horse blood agar plates made by pouring a thin 5 per cent. blood agar layer over a layer of ordinary agar. By this method there is no doubt that it is more easy to recognize colonies. All swabs were cultured as soon as possible after taking them.

Onset of Infection

The onset was usually sudden, and accompanied by considerable constitutional disturbance. In the later cases diarrhoea was often the first symptom. Most frequently, however, a sore or dry throat was the first thing complained of; pain on swallowing was a feature, as were generalized aches and pains, and, less commonly, rigors. The tonsillar glands were always palpable and tender. These symptoms were closely followed by a nasal discharge (described as "catarrh") and a harsh, dry, unproductive cough. In the more severe cases delirium occurred, particularly at night. The duration of the acute stage of the disease ranged from three days up to three weeks. Very rarely was any patient able to return to full work, feeling well, under three weeks. Loss of weight occurred always, and was severe in some cases.

The Throat Condition

The appearance of the throat varied, and can be classified into approximately three types.

1. *"Red and Glazed" Type.*—The tonsils were red and injected, and not usually swollen. This appearance was spread about half an inch laterally from the anterior pillars of the fauces. The uvula was also affected, and was red and slightly swollen. The posterior pharyngeal wall appeared to share in the inflammation.

*A paper read before the Mid-Essex Division of the British Medical Association.

2. *Oedematous Type.*—This type was perhaps the next most common. The tonsils were grossly swollen, bulging out the fauces, and if (as in some cases) unilateral in distribution gave the appearance of a quinsy. The posterior pharyngeal wall was often completely obscured and the uvula greatly swollen. The patients usually complained of pain on swallowing and difficulty in breathing. If, under the impression that pus was present, attempts were made to evacuate the swollen area, then the resultant exudate would be blood. Incision did not appear to give any relief or expedite recovery; in one case aggravation was produced and oedema of the glottis occurred, with fatal results.

3. *Ulcerative and Follicular Type.*—In the ulcerative type shallow whitish sloughs were present together with oedema, which gave an appearance not unlike diphtheria. Repeated swabs were negative for the Klebs-Loeffler bacillus. In the follicular type oedema was more marked but coexistent with small white pinhead follicles, which later coalesced to form ulcers. Pain was a very prominent feature of this type of case.

General Symptomatology

The temperature was always raised in the initial stages, and this was accompanied by a raised pulse rate, the pulse tension being of poor quality. In some cases the pulse was relatively slow at rest. After a period varying from twenty-four hours to six days the temperature would become normal in the absence of complications, and the pulse rate would slow down. The slightest exertion would, however, produce tachycardia and dyspnoea. The respiration rate was not normally increased.

The symptom picture varied to a marked degree. In the mild and abortive types of case it was not infrequent that the patient continued to work, only consulting his doctor later on account of general weakness with palpitations and dyspnoea on exertion. Examination of the throat would inevitably show the tell-tale redness and injection, and throat swabs invariably grew haemolytic streptococci in large numbers. In the fulminating cases death occurred as soon as the fourth day, usually from a complication such as oedema of the glottis.

Following rapidly upon the sore throat there would be a dry, harsh, painful cough—all the more painful on account of the concomitant muscular pains occurring, most noticeably in the intercostal muscles. This cough appeared to be entirely due to irritation of the upper air passage. Finally, a nasal discharge would occur, and the patient would always describe himself as having caught a cold. Unfortunately in the early stages of the epidemic the nasal discharge was not examined bacteriologically, but in the later cases it nearly always grew a haemolytic streptococcus. General weakness and tachycardia on exertion were inevitable sequelae.

Local treatment to the throat took the form of painting at frequent intervals with Mandl's paint, which, although it appears to have no effect on the soreness, definitely improves the throat, and apparently has some lethal or inhibitory effect on the streptococcus. Frequent gargles with hot hypertonic saline gave relief, and the addition of aspirin helped to dull the pain. In some cases local application to the neck of ung. methyl sal. gave relief, but better results were obtained by heat, either in the form of radiant heat or antiphlogistine.

In many instances *an erythematous rash* occurred like that associated with scarlet fever: this varied from a blush to a bright redness. The Schultz-Charlton test was negative. *Peeling* occurred in some cases, but only on the palms of the hands and the soles of the feet. In some instances *a sore tongue* was a feature, and fissures could be observed, whilst in others a definite stomatitis occurred, which was so painful as to prevent even the taking of fluids. Chronic streptococcal glossitis was observed on two occasions and was very resistant to treatment, the best results being obtained by ionization. The tongue was never like that described as associated with scarlet fever. *Otitis media* was not an uncommon complication, the patient only consulting the doctor after a purulent discharge had occurred. Examination of the pus was always positive for haemolytic streptococci. Before perforation of the tympanic membrane it appeared red and injected and bulging. One case of lateral sinus thrombosis occurred which was associated with a pulmonary abscess and broncho-pleural fistula. Sinusitis occurred in several cases, but cleared up without special treatment other than ephedrine or adrenaline sprays.

There were two cases of iridocyclitis. Throughout the epidemic only one case of pneumonia was encountered. This was first seen in the process of resolution.

Possibly the most consistent feature of the disease was the tachycardia and dyspnoea on exertion experienced afterwards. In some cases the heart was dilated and definite systolic bruit could be heard at the apex. The apex beat moved in and the bruit disappeared upon adequate rest. In practice it was found that adequate rest during the initial stages of the disease almost invariably decreased the length of convalescence and saved the occurrence of the symptoms described above. In a number of the cases bradycardia (on rest) was a feature, and in one particular case this was accompanied by a remarkable diffuse and heavy apex beat, which was outside the nipple line.

Special Complications

ACUTE MASTOIDITIS

This condition was found on several occasions, varying from moderately severe cases to complete mastoid necrosis. Two cases of the latter were observed, both occurring in connexion with the cellular type of mastoid.

Case 1.—B. M., aged 11 years, commenced with an acute tonsillitis of the oedematous type. Within twenty-four hours earache occurred, and within forty-eight hours he had symptoms of mastoiditis. At operation complete mastoid necrosis was demonstrated. An extremely complete operation was performed, but in spite of this the temperature remained raised to 101° F., with a correspondingly raised pulse rate. Examination of the pus revealed the presence of haemolytic streptococci in pure culture. The temperature remained raised in spite of the administration of serum, but the patient's general condition improved. On the seventh day a paresis of the corresponding eye (right) appeared, which was diagnosed as Gradenigo's syndrome. In view of the persistent pyrexia it was deemed advisable to re-explore the mastoid. This was done, but no further bone disease was demonstrated, and large quantities of granulation tissue were scraped away. Antistreptococcal serum (scarlatinal) was given, and this was repeated the next day. On the eleventh day the patient developed acute nephritis. This was treated by diet, and he improved. Unfortunately, twenty-one days later, just when his urine was free from red blood cells, he had a recurrence of his acute nephritis and also suppuration of a cervical gland occurred in the right side of the neck. This was incised, and from this moment his condition improved rapidly. After recovery an autogenous vaccine prepared from the culture from the tonsils was given, commencing with small doses. The final renal function tests showed no permanent impairment. It is proposed to remove the tonsils at a later date.

CELLULITIS OF NECK

Four cases of acute streptococcal cellulitis of the neck, in connexion with septic teeth, were observed. It is possible that in these cases the infection had spread from the tonsils, as throat swabs grew haemolytic streptococci in each case. It is of interest to note that both these cases occurred in pregnant women, and that abortion took place. Observation led to the belief that incision of the cellulitis in the absence of fluctuation is inadvisable, and also that extraction of the teeth was contraindicated in the absence of obvious pus.

Case 2.—Ada S., aged 38 years, was admitted on August 4th, 1934, complaining of a brawny swelling of the right side

of the neck and face. There was a history that one week before the neck had been swollen and tender, but this had subsided. The swelling had recommenced two days later, and had gradually become worse. She had difficulty in opening the mouth and swallowing. On examination there was found to be a brawny swelling of the right side of the neck and face; there was no fluctuation. A septic tooth was present in the right lower jaw. The patient was very toxic. A swab of the throat showed an almost pure growth of haemolytic streptococcus. She was given 10 c.cm. of polyvalent anti-streptococcus serum. This was repeated on the next day and the tooth extracted. A small quantity of pus escaped, culture of which showed a haemolytic streptococcus. The urine then showed the presence of sugar and acetone. Insulin and glucose were administered intravenously, with more serum, and she improved considerably. On August 7th she aborted, and the placenta was retained. This was later removed manually. A blood count showed a leucocytosis of 15,000 white blood cells with 75 per cent. polymorphonuclear cells. The polymorphs showed no gross shift to the left. On August 9th she became rapidly worse, and died of heart failure, although her cellulitis had subsided. It appeared that the combination of the abortion superimposed upon her already toxic condition was the final cause of death.

Cellulitis of the neck also occurred in connexion with the glands, notably tonsillar and lingual glands. This in most cases took the form of a brawny oedema, and yielded to serum without the necessity for surgical intervention on account of suppuration. There were two cases of erysipelas.

Cellulitis was further seen in various parts of the body which could not in any circumstances have been due to direct spread from the throat—as for example, the hand, the foot, and the ankle. (The route of infection was not always obvious, but it was possibly through the blood stream, most probably by the droplet route, either from the patient or from an external source.) In the absence of pus formation, the treatment which gave best results was serum therapy, which resulted in either localization or resolution. Evidence seemed to indicate that early incision is contraindicated.

Case 3.—Mrs. S., aged 58 years, was admitted on account of a swelling of the hand, with pyrexia, tachycardia, and generalized malaise. The hand was swollen, tender, and painful, and it was thought that pus was present under the palmar surface. Free incision was made under anaesthesia, but no pus was found. On the next day the patient's condition was worse, and a second operation was performed, again with negative results. On the following day the hand was again explored and a tube inserted up above the wrist, again without pus being found. Amputation of the arm was considered. The whole hand was a mass of brawny oedema, and almost twice its normal size; it was tender, red, and painful. Examination of the pus showed many streptococci, and a haemolytic streptococcus was obtained on culture. Administration of polyvalent antistreptococcal serum produced immediate and most dramatic results; the temperature rapidly fell, pus discharged, and the hand cleared up completely. (Similar results were observed on cases of cellulitis of the leg.)

ACUTE NEPHRITIS

This occurred in four cases of the series. In one case it was associated with acute mastoid necrosis, and in another with the ulcerative type of tonsillitis. This was given local treatment to the throat, serum, and diet, with daily examination of the urine for red blood cells. The diet was restricted until the urine was free of red cells.

Case 4.—E. O., a grocer aged 20 years, was admitted to the Chelmsford Hospital on February 12th, 1934, with a history of sore throat commencing fourteen days before. There had been no swelling and no pain until the last twenty-four hours, when the urine had become cloudy. On admission the man was extremely ill, his temperature being 99° F. and the pulse 100. The neck was swollen and brawny, and the throat red, swollen, and oedematous, with the tonsils showing some ulcerated patches. The man looked toxic, and there was oedema of the ankles. The urine contained much blood, and, microscopically, blood casts and red blood cells. A throat swab gave a culture of haemolytic streptococci. He was treated with local applications of Mandl's paint every two hours, and 10 c.cm. of polyvalent antistreptococcal serum was given intramuscularly on two successive days. The diet consisted of fruit juice and glucose orangeade. He commenced to improve after forty-eight hours, but the urine contained blood cells until May. Repeated swabs of the tonsils still grew a haemolytic streptococcus. The blood urea was at first raised to 85 mg. per 100 c.cm., but later fell to 40 mg. per 100 c.cm. The patient was treated by dietary and rest until the urine was free from red blood cells. An autogenous vaccine was prepared and given, and the tonsils removed six months later without any reaction.

All these cases yielded to treatment on rigid medical lines until the urine was free from red blood cells. In the cases of E. O. and B. M. an autogenous vaccine was prepared and given with a view to tonsillectomy later. The report on the microscopical inspection of sections of the tonsils showed the following characteristics: "adenitis of considerable standing, but at the time of removal in a relatively quiet stage; very great sclerosis around the periphery of the individual follicles; no high organismal content in the crypts."

ARTHRITIS, FIBROSITIS, AND HEADACHE

In the early stages of the epidemic many cases of arthritis secondary to a streptococcal throat were diagnosed as acute rheumatism. It soon became evident, however, that they did not yield to the usual treatment, insomuch as salicylates had little or no effect; furthermore, on closer examination of the affected joints it could be seen that they did not conform to the type usually associated with acute rheumatism. The joints were painful, but not greatly so, the swelling was moderate, and there was nearly always fluid present. Under pressure, although tenderness could be elicited, it was nevertheless not very marked, and redness was not a feature. Movement was restricted as it caused pain. The joints principally affected were the ankle, knee, and wrist. The arthritis was not usually multiple. The most pronounced feature was that, although resistant to salicylates, the arthritis inevitably improved after one injection of anti-streptococcal serum (polyvalent).

It was noticed that there was another type of arthritis which was observed to occur chiefly in the small joints of the hands and feet, associated in some cases with generalized pains, worse on movement. This condition, however, occurred more in association with the soft structures around the joint. The fingers showed generalized fusiform swelling. Again, this condition failed to respond to salicylates in various forms. Local applications of antiphlogistine appeared to give relief, and in all cases salicylates obtained little or no response. It is, however, advisable to administer salicylates if only as a diagnostic measure. Serum therapy appeared specific. Absolute immobilization and rest was essential on account of pain. No cases suppurated.

Case 5.—Mary T., aged 19 years, commenced with a sore throat and diarrhoea, following which she had generalized vague pains. She improved to a certain extent upon rest and sodium salicylate, but continued to complain of stiffness. On admission she was found to have generalized stiffness, and pain and swelling of the small joints of the fingers and also of the wrists. She was also "stiff" on movement. A swab of the tonsils gave a mixed growth with a haemolytic streptococcus predominating. An autogenous vaccine was prepared and administered with great care. Some slight reaction was observed, and there was some improvement. After a suitable period the tonsils were removed; there was some slight immediate reaction, but improvement proceeded rapidly, and massage and movements were administered. She made an uneventful and speedy recovery, and is now back at work. The total duration of absence from work was eight months.

In association with arthritis may be mentioned one of the most common sequelae—namely, fibrositis. The muscular pains may be divided into two types: a generalized pain associated with the onset of the disease, which usually passed off after forty-eight hours and was particularly complained of in the early stages; and a persistent pain, worse on movement, with local tenderness on pressure, which would be present for several weeks and was very resistant to all kinds of treatment. The first type can be seen in almost any acute illness in which "aches and pains" are a feature, but the second type occurred in the most varied manner. Headache is most common, and relief could generally be obtained with pyramidon, phenacetin, or luminal, but it was also seen as an alarming symptom, and in some cases morphine had to be given to obtain relief. The headache appeared to be due to fibrositis of the scalp, and could be relieved in some cases by massage to the scalp gently applied. Intercostal fibrositis in many cases resembled pleurisy, but no rub could be heard, and local tenderness was most marked. It was the cause of intense discomfort during the coughing stage. Generalized fibrositis was not uncommon, and stiffness of the joints and limbs was most marked. Lumbago was encountered on several occasions, and eventually yielded to treatment.

OTHER COMPLICATIONS

Three cases of streptococcal peritonitis occurred, one of which terminated fatally. Two were associated with acute appendicitis, and in both cases diarrhoea was a prominent feature. The other case was apparently one of secondary infection. There was one instance of secondary infection of a compound fracture.

Puerperal sepsis has probably led to more discussion than any other condition. Several cases were noted during the last year, and in some instances a haemolytic streptococcus was isolated. It is of interest to note here that Whitley states to me that the incidence of puerperal sepsis in the area has been higher during the last twelve months, and that the number of cases in which *S. pyogenes* has been isolated has also been larger, although the source of infection was not traced. It may be remarked that a routine swabbing of the throats of six nurses has revealed haemolytic streptococci in the throats of five of them; and that a swab of a district nurse and a doctor from one area also showed the presence of the organism.

General Treatment

For general treatment complete rest in bed with fluids only was the rule. These consisted chiefly of glucose, orangeade, and lemonade, taken as hot as possible at frequent intervals. At least half a pound of glucose should be ingested daily. The local treatment to the throat has already been described. Rest was maintained until the temperature had been quiescent for at least two days and the pulse rate had settled down. "Graduated getting up" was then instituted, and, provided that this technique was followed, the patient was usually fit for work at the end of three weeks from the onset.

SERUM THERAPY

Unfortunately, facilities are not available for administration of serum in a large number of cases, due, first, to the expense, and, secondly, to the ever-present danger of a reaction. An extremely good illustration of this occurred about two years ago in a man aged 40, who, after desensitization, had recurrent and alarming attacks of urticaria, culminating in shock and unconsciousness.

Serum was used on cases in the series which showed complications such as nephritis, arthritis, and cellulitis, but later in the epidemic it was used as a routine measure upon all cases from which haemolytic streptococci had been isolated. The results undoubtedly justified the expense.

The serum used in all the cases except one was polyvalent antistreptococcus serum (B. W. and Co.). In three instances I used serum as a means of obtaining a temporary passive immunity, and I feel that this is justifiable in cases in which development of an acute infection would be fatal. The dosage in the majority of cases has been 10 c.cm., repeated, if necessary, according to the clinical picture. Insulin and glucose may be used at the same time. In the majority of cases the intramuscular route was used with success.

Careful consideration of the history of the patient and family as to allergic conditions was undertaken, and also as to whether serum had ever been administered before, and a small test dose given if necessary. In all cases a small dose of ephedrine was given about twenty minutes before the injection. In cases of sensitized patients desensitization was performed: in all cases a syringe ready loaded with adrenaline was at hand. In the eventuality of a reaction 3 minims were injected at once, followed by 1 minim every half-minute.

Differential Diagnosis

Diagnosis depended upon the physical signs and symptoms—notably, the sore throat, pyrexia, and rapid pulse, associated with general constitutional disturbance and the typical appearance of the throat confirmed by bacteriological examination.

Diphtheria.—With regard to the throat, the most important disease to be excluded is diphtheria. It should be borne in mind that it is possible to have a mixed infection, and that this is the type of case which goes to a fatal termination. Differentiation should be possible on account of the appearance of the throat, enlargement of the glands, general symptoms, and the smell. In doubtful cases antidiphtheritic serum should be given as well as antistreptococcal serum.

Scarlet Fever.—In connexion with this, diagnosis is of importance only in order to satisfy the local health authority with regard to notification. The Schultz-Charlton reaction and the result of the Dick test may be helpful in coming to a decision. There is no doubt that the two diseases may be manifestations of one and the same infection. The tongue in most cases of streptococcal tonsillitis is not a scarlet fever tongue, and the complications differ insomuch as they are more severe than those of the scarlet fever that has occurred locally during the last few years. In my experience scarlet fever as seen at present in this neighbourhood is a much milder condition than streptococcal tonsillitis.

Acute Rheumatism.—The differential diagnosis is by means of the clinical appearance of the joints and their failure to respond to treatment with salicylates, or, better still, by their response to serum. In the majority of the cases the heart has escaped valvular damage, which appears to indicate that the lesion is primarily a toxic myocarditis.

Rheumatoid Arthritis.—There appeared to be no need to differentiate, as it is evident that the multiple arthritis associated with streptococcal infections is merely one of the infective type of "rheumatoid arthritis." The blood sedimentation rate was increased in all cases. Finally, in the differentiation of this condition from any other condition due to a pyogenic organism, too much stress cannot be laid upon the desirability of examination of all pus as a routine measure.

Other differential diagnoses would be *glandular fever, mumps, acute osteomyelitis, and septicaemia.*

Prophylaxis

The mode of infection, as has been discussed elsewhere, appears to be chiefly by the droplet route; hence it would appear advantageous to devise some method by which carriers, or potential carriers, may be sterilized.

The only method of sterilization of the throat which has proved satisfactory in my hands has been the local application of Mandl's paint, and it is extremely difficult to persuade large numbers of people to paint their throats daily. Furthermore, it would appear that the majority of convalescent patients still have a haemolytic streptococcus in their throats unless treated with painting during the course of the disease.

This, then, appears to indicate that the routine treatment of the infection by painting the throat will act also to some degree as a prophylactic measure. With this in view, I have endeavoured, where possible, to persuade convalescents to continue painting their throats as long after their recovery as possible. Gargling with hypertonic saline also is efficient to some degree. Isolation in a fever hospital has the disadvantage that there is a liability to contract infection with another type of the same organism there.

The chief causes of the continuation of the present epidemic would appear to be as follows.

1. The failure of patients to seek medical advice at the earliest opportunity, and hence the spread of infection before treatment has been commenced.
2. The fact that financial considerations compel the average man to return to work too soon, often with the throat still showing the presence of haemolytic streptococcus.
3. The present desire of the schools to maintain their attendance lists at the highest level, regardless of the fact that a child with a sore throat is a potential source of danger to the other children.

In hospital, the matter presents a far more serious aspect, as the introduction of an acute infection among persons whose resistance has already been lowered by other conditions is nothing short of a calamity. There is also to be considered the danger of contamination of clean wounds, with fatal results.

Several methods of prophylaxis suggest themselves.

1. A careful routine examination of the throats of all new admissions, with isolation and treatment if necessary.
2. A routine swab of all nurses periodically, with daily painting if positive.
3. A routine Dick test with immunization of all nurses on commencing hospital duty.
4. The wearing of masks for all dressings.
5. Immediate isolation of any nurse reporting with a sore throat, no return to duties being allowed until her swab is negative.
6. The daily examination of the throats of nurses and patients by the ward sisters.
7. Closure of wards during epidemic to all except acute cases, and cessation of operations for tonsillectomy or adenoidectomy.
8. The routine examination of all pus for streptococci, and in special cases administration of prophylactic doses of serum.

Summary

Although cases of scarlet fever have occurred locally during the last year, there has also occurred an epidemic, which has been more severe, of streptococcal tonsillitis, due to one or more types of haemolytic streptococci.

The majority of the cases showing complications have improved with treatment with polyvalent antistreptococcal serum and the other measures described.

Before concluding, one question appears extremely relevant: Are we any longer entitled to regard scarlet fever as a separate disease to be accepted by the public health authorities as a ground for notification and isolation?

I should like to express my appreciation for the help and suggestions given me by Dr. Frederick Griffiths and Dr. J. T. Whitley in the preparation of this paper.

TONSILLITIS AND ALBUMINURIA

BY

O. L. V. S. DE WESSELOW, D.M., F.R.C.P.

H. K. GOADBY, M.D., M.R.C.P.

AND

D. C. L. DERRY, M.B., B.S.

(From the Medical Unit, St. Thomas's Hospital)

The connexion between infections of the tonsils and upper respiratory passages and certain renal lesions is now universally recognized, but surprisingly little information is available as to the frequency of occurrence of renal damage in such infections, and still less as to the factors which determine its appearance.

Our first object in the present investigation was to determine the incidence of renal lesions in an unselected series of patients reporting for tonsillitis at the out-patient department of a general hospital.

The only extensive study of this subject known to us is that of Petersen and Schwab,[1] who in a series of 479 cases of tonsillitis found evidence of a renal lesion (Nierenerkrankung) in thirty-six (7.5 per cent.), such lesions occurring more frequently in patients with peritonsillar involvement. Their analysis of the type of lesion present in their cases is, unfortunately, complicated by the inclusion of ten other patients who had been admitted to hospital for a renal lesion following on a throat infection after a definite interval. Including these ten patients, they classify 28 per cent. of their forty-six cases of renal damage as suffering from acute glomerulo-nephritis, 34 per cent. as cases of focal nephritis, and 38 per cent. as instances of renal irritation; in these latter patients isolated red cells, casts, or renal epithelium made their appearance in the urine for a few days only, and no other evidence of renal damage was present. In a smaller series of 151 patients Lomnitz[2] saw two cases of febrile albuminuria and three instances of late post-infective albuminuria, which he classified as nephritic.

The incidence of late albuminuria and nephritis following scarlet fever in the hospitals of the L.C.C. was, at the time of our investigation, 4.1 per cent., but the upper respiratory infection of the scarlet fever patient is due to a specific organism, and the patient is hospitalized at an early stage of his disease. Such a figure is not, therefore, necessarily applicable to a group of patients suffering from varied infections and attending an out-patient clinic.

Our second object was to study certain factors which might determine the appearance of a renal lesion in the individual patient. Among such factors are an infection by a specific organism, a peculiarly severe infection by any organism, an indeterminable susceptibility on the part of the patient, some extraneous factor, or a combination of any of these.

The two possible factors to which we have directed our attention are: first, the connexion between renal lesions and the predominance of haemolytic streptococci in the infected throats; and, secondly, the influence of the external temperature on the incidence of renal damage—since exposure to cold has always been regarded as conducing to the production of nephritis. In the epidemic of trench nephritis, for instance, which affected the British Army in France, the disease showed a maximum incidence during the winter months, and was most frequently met with among the infantry, who were especially exposed to the inclemency of the weather. It does not, however, follow that cold was the determining factor, since the incidence of infection among the troops during summer and winter was not determined. There is no reason to suppose that "trench nephritis" was not primarily the result of an infection, as is the acute glomerulo-nephritis of civilian life, though, in the experience of one of us, a history of preceding tonsillitis was rare. Slight infections

of the upper respiratory passages and of the skin were, however, frequent among the troops, and their part in the production of nephritis was not, perhaps, sufficiently emphasized. It is possible that seasonal variations in the incidence of such infections, rather than exposure to low external temperatures, determined the marked winter rise in the nephritis curve.

The haemolytic streptococci may reasonably be regarded as suspect, since the diffuse glomerulo-nephritis of scarlet fever follows on an infection by an organism of this group, and since the examination of septic foci in cases of developed nephritis frequently shows the presence of such streptococci. Streptococci, too, are among the organisms which have been implicated in the production of focal nephritis.

Methods of Investigation

Patients reporting for tonsillitis in the casualty department of the hospital were transferred to our clinic on the same or the following day, all cases of scarlet fever and suspect diphtheria being excluded. All throats were swabbed as soon as seen, and the patients were asked to bring up a sample of the morning urine on the following day, when the throat was again examined. If progressing satisfactorily they were asked to attend with a sample of morning urine a week later, and once more at the end of a fortnight.

In a patient transferred to us on the third day of the disease, the urine would therefore be examined on the fourth, eleventh, and eighteenth days of the infection, a period which should cover the early and late renal lesions. Cases in which albuminuria occurred were followed until the albumin disappeared or the patient ceased to attend. Blood pressure determinations were at first made at each attendance, but were soon discontinued in the case of children under 10 years of age, owing to the great difficulty of obtaining readings which could be regarded as basal in young subjects in an out-patient clinic.

The urine was tested for protein with salicyl sulphonic acid, and the centrifuged deposit was examined for formed elements. The throat swabs were stirred in a tube of sterile broth and plated on human blood agar. The plates were examined on the following day and were divided, according to the proportion of haemolytic streptococcal colonies present, into five groups, varying from an almost pure culture of haemolytic streptococci to a complete absence of the organism. Only cases in which the plate showed an almost pure culture of haemolytic streptococci, or a grossly predominant growth of that organism, were classified as indicating a haemolytic streptococcal infection.

More detailed and frequent examinations of the patients were considered inadvisable, as it was hardly to be expected that out-patients suffering from what they regarded as a trivial complaint would be prepared to waste much time and energy on repeated attendances at the clinic. Even under the conditions detailed above the wastage considerably exceeded 50 per cent.

Material Examined

In all, 798 patients were seen at the clinic during the thirteen months July, 1932, to July, 1933, inclusive, but only 354 completed the course of attendances detailed above. Of these 354 patients 224 were 10 years old and under, 101 were 11 to 20 years of age, and twenty-nine above 20 years of age. It is on these 354 cases that our conclusions are based.

It is by no means easy to determine the significance of the presence of protein in the urine of the patient suffering from tonsillitis. Among possible causes of such albuminuria we have to consider febrile albuminuria, focal nephritis, and acute diffuse glomerulo-nephritis; in addition, the albuminuria may be the expression of a benign or cyclical albuminuria, or the patient may already be suffering from a chronic nephritis, the albuminuria being in no way related to the incidental tonsillar infection.

The last two possibilities have been so far as possible excluded by directing the patient to collect the urinary sample on rising in the morning and by inquiry as to the past history. Albuminuria occurring during the acute stage of the infection, in cases in which the centrifugalized urinary deposit shows no appreciable number of red blood cells, and no casts other than occasional hyaline, we regard as "febrile."

There remains the more difficult problem of distinguishing between focal nephritis and acute diffuse glomerulo-nephritis. Broadly speaking, focal nephritis occurs during the acute stage of the infection—that is, at a period corresponding to the first urinary examination in our scheme—while acute diffuse glomerulo-nephritis is post-infective, occurring at a definite interval after the subsidence of the acute infection. The presence of hypertension and, in many cases, of oedema also serves to distinguish the diffuse from the focal lesion, but it is impossible to attach much significance to minor variations of blood pressure in an out-patient clinic, where readings are not taken under basal conditions, and transitory rises in pressure may be easily missed if readings are not taken almost daily. We have therefore divided our cases of albuminuria into two groups: *early* and *late*. In the early group albumin was found in the urine at the first urinary examination, in the late it appeared for the first time at the second or third.

Results

Of 354 patients 131 showed albumin at the first examination, and in fifty-one (14.4 per cent.) more than a faint trace was present. In thirty-five of these (10 per cent.) it is probable that focal nephritis had resulted from the tonsillar infection, since ten showed appreciable numbers of red blood cells (the haematuria in one case being recognizable macroscopically), twelve showed casts other than hyaline, and four both casts and red blood cells at the first examination; in nine others albumin was present at the first examination, and casts and blood appeared later.

In one case in which albumin and casts were present at the first examination, nephritis had been diagnosed a year before, and in another with similar urinary findings definite diffuse glomerulo-nephritis with oedema and hypertension developed later and necessitated admission to hospital: this latter patient was first seen on the eighth day of the tonsillar infection, and was in all probability an instance of diffuse glomerulo-nephritis occurring at a somewhat early date in the post-infective period.

Excluding these two patients, a diagnosis of focal nephritis was suggested by the urinary findings in no fewer than thirty-five of the series: apart from the urinary findings the patients presented no symptoms, and, as far as our data go, no rise of blood pressure; oedema was invariably absent. It is generally accepted that the immediate prognosis in this condition is excellent, and our findings are in accordance with this view. In eleven cases casts and red blood cells were only present at the first examination, and were not found a week later: in twenty-three of the thirty-five the albumin had disappeared within a fortnight, and in a further five at a somewhat later date: in seven albuminuria was still present when the patients were last seen, a fortnight or longer after the first urinary examination.

No correlation could be found between a predominance of haemolytic streptococci in the throat swab and this early urinary lesion. Of the whole series of 354 patients ninety-one (25.7 per cent.) showed a heavy haemolytic streptococcal infection: of the fifty-one patients showing more than a trace of albumin in the urine at the first

examination twelve (23.5 per cent.) showed such an infection, and of the thirty-five cases in which focal nephritis was believed to be present eleven (31.4 per cent.) were heavily infected with this organism.

In fifty-seven cases albuminuria was first found at the third or fourth attendance—that is, from about the tenth to the twentieth day of the disease. In twenty-two of these patients (6.2 per cent.) more than a trace of albumin was present, and in five casts other than hyaline were found. In two of these latter confirmatory signs of diffuse glomerulo-nephritis were noted—in one oedema and in the other a transitory rise of blood pressure ; in the three others no confirmatory signs of diffuse nephritis were present. In one of these an active infection (cervical adenitis with abscess formation) was present at the time when the albuminuria and casts appeared, and the patient was probably suffering from a focal nephritis. Adding the case of definite diffuse glomerulo-nephritis alluded to above—in which the albuminuria was detected on the eighth day of the infection—we have in all three undoubted cases of diffuse glomerulo-nephritis in our series of 354 patients suffering from tonsillitis: of these, two cleared rapidly under observation. Of the remaining twenty cases of late albuminuria ten are known to have cleared.

Of the twenty-two cases of late albuminuria nine (41 per cent.) showed a heavy haemolytic streptococcal infection, a figure rather above that of the whole series: of the three cases which we have regarded as suffering from diffuse glomerulo-nephritis only one showed such an infection.

It must be admitted that in the majority of our cases of late albuminuria the appearance of albumin in the urine remains completely unexplained.

To give one instance of this type of case, a female child, 6 years of age, was seen on the third day of the infection. The tonsils were engorged, but no exudate was present ; no haemolytic streptococci were found in the throat swab. On the fourth day a slight follicular exudate was present ; the urine was free from albumin. On the eleventh day the throat was clear and no albumin was present in the urine. On the eighteenth day, the throat still remaining clear, a considerable quantity of albumin appeared in the morning urine, but no casts or red blood cells were present in the centrifugalized deposit. On the twenty-fifth day the urine was again completely clear. No oedema was noted at any time, and the child appeared to be in good health after she had recovered from the initial tonsillar infection. The albuminuria undoubtedly appeared at the time at which a nephritic lesion is to be expected, but in default of formed elements in the urine, and of other symptoms, a diagnosis of diffuse nephritis can scarcely be made.

The seasonal incidence of early and late albuminuria is shown in the following table, from which it is obvious that there is no relation between such variations of external temperature as our patients are exposed to at different times of the year and the frequency of albuminuria. The incidence of focal nephritis would appear to be somewhat higher during the winter months. Such a finding does not, of course, exclude the possible effect of extremes of temperature in the production of renal lesions, but merely indicates that such degrees of exposure as are met with in a city population are not an important factor in determining the appearance of albuminuria after tonsillitis.

	Total Cases	Early Albuminuria	Late Albuminuria	Focal Nephritis
July-Sept., 1932 ...	100	16 (16.0 %)	5 (5.0 %)	9 (9.0 %)
Oct.-Dec., 1932 ...	102	14 (13.7 %)	7 (6.8 %)	11 (10.7 %)
Jan.-Mar., 1933 ...	59	10 (16.9 %)	3 (5.1 %)	9 (15.2 %)
Apr.-July, 1933 ...	93	11 (11.8 %)	7 (7.5 %)	6 (6.4 %)

It may be mentioned that of our 354 patients thirty complained of " rheumatic " pains in the limbs after the tonsillitis had subsided. The patients thus affected were mainly young children, and frequently showed some degree of anaemia. The incidence of haemolytic streptococcal infection in these patients was 30 per cent., and corresponded therefore to the average for the whole series. In two cases chorea occurred, and in two erythema nodosum. No other complications were noted except the purely local, such as peritonsillar infiltration, cervical adenitis, and otitis media.

Conclusions

Of 354 cases of tonsillitis 14.4 per cent. showed definite early albuminuria and 6.2 per cent. late albuminuria.

From the urinary and clinical findings it would seem probable that focal nephritis occurred in thirty-five (10 per cent.) and diffuse glomerulo-nephritis in at least three (0.8 per cent.).

No correlation was found between predominance of haemolytic streptococci in the throat at the time of the acute infection and the incidence of focal nephritis.

Seasonal variations of external temperature did not appreciably affect the incidence of early or late albuminuria.

The incidence of predominant haemolytic streptococcal infection in the throat was not greater in those patients who afterwards complained of " rheumatic " pains than in the general series.

References

[1] Kayser-Petersen, J. E., and Schwab, E.: *Münch. med. Woch.*, 1922, lxix, 580.
[2] Lomnitz, H.: *Med. Klinik*, 1907, iii, 37.

SPIROCHAETAL JAUNDICE IN A LONDON SEWER WORKER CONFIRMED BY LABORATORY EXAMINATIONS

BY

E. A. M. HALSTED, M.B.

HOUSE-PHYSICIAN, UNIVERSITY COLLEGE HOSPITAL

In view of the number of cases of spirochaetal jaundice reported recently in sewer and canal workers, the following case occurring in a London sewer worker, fully confirmed by laboratory tests, may be of interest.

Case Record

The patient was a well-developed, unmarried man of 29, who had always worked as a labourer and bricklayer. Two months before the onset of his illness, for the first time in his life, he started to work in a London sewer, near the Elephant and Castle. There were no other sewer workers in the family. The duties consisted in carrying new bricks to men working on the wall of the sewer and carrying away the old ones which had been removed. The removed bricks frequently had a layer of slime on their surface, and the patient had to lift them by hand into a truck. Abrasions on the hands were frequent, but, on questioning, he stated that he had cut his hand more severely than usual approximately one week before the onset of the illness. He was taken ill on October 10th, 1934, and the subsequent course of the illness was as follows:

October 10th.—The onset was sudden, but the patient was able to work during the whole of the first day of the illness, and went to bed on the second. He had a severe headache and complained of pains all over, especially in the muscles and joints of all four limbs. He had a sore throat and sore eyes, and vomited everything for a week. In view of the sore throat he was believed to have diphtheria. A swab taken on October 12th was said to be positive, and he was sent to Acton Fever Hospital four days after the onset with this diagnosis.

October 14th.—On admission he looked and felt ill, and had haemorrhagic herpes of small extent. His throat was slightly infected, but there were no further signs of diphtheria. A further swab was taken, and found to be negative.

October 16th.—He became jaundiced for the first time, and his urine contained bile. The same day, the sixth after the onset of the disease, his general condition became much worse, and he was delirious. He remained delirious for three days, and also developed profuse epistaxis and melaena.

October 18th.—The general condition was worse; the patient was still bleeding from the nasopharynx and violently delirious, after an extremely restless night. The same afternoon he was given 10 c.cm. of anti-leptospiral serum.

October 19th.—On this date, after an illness of nine days, he was very much better; and, save for a slight recurrent epistaxis and the jaundice, all the symptoms had disappeared.

October 20th.—The patient was transferred to University College Hospital. On admission there was marked jaundice, but, although weak, he felt perfectly well again; there was no sign of haemorrhage anywhere. The liver was palpable, but not tender; the spleen was not palpable. On October 25th the urine contained a trace of albumin, occasional leucocytes and epithelial cells, and very occasional red cells and granular casts. The subsequent course showed progressive improvement without recrudescences, the jaundice fading in about a month, and the patient steadily gained in strength. A blood count had shown a moderate degree of secondary anaemia, presumably accounted for by the rather severe haemorrhages, but this rapidly disappeared with large doses of iron.

LABORATORY INVESTIGATION

October 19th.—Two guinea-pigs were scarified and inoculated with the patient's blood. Neither of these animals developed any signs of disease. This can probably be accounted for by the fact that it was necessary to transport the blood from Acton, and thus some time inevitably elapsed between the drawing of the blood and the inoculation.

October 26th and 31st.—The patient's serum gave a positive adhesion test to the human strain of leptospira. This was positive even in extreme dilutions.

October 26th, November 1st and 2nd.—On each of these three dates two guinea-pigs were inoculated with centrifuged urine deposits. In the centrifuged specimen on November 1st six motionless, apparently dead, leptospira were seen. In the specimen on November 2nd there were large numbers of apparently dead leptospira. Before the two latter specimens were collected the urine had been rendered alkaline by sodium bicarbonate and potassium citrate given by mouth, as the leptospira are said to retain their vitality better in an alkaline medium. After a period of nine days one of the guinea-pigs inoculated on November 2nd died, with all the signs of leptospiral jaundice, verified by post-mortem examination, and numerous living, actively motile, leptospira were seen on direct examination of the liver. From this source further inoculations were made, and the organism was grown in pure culture and proved to be a typical human strain of leptospira icterohaemorrhagica.

December 13th.—The urine was free from leptospira. Several specimens during the month of November had all contained the organism, which was identified by direct examination of centrifugalized deposits.

The incubation period has been stated by Schuffner to vary between seven to thirteen days, so it is reasonable to suggest that the infection may have been due to the injury to the hand contracted a week before the onset. This is also suggested by the presence of slime on the old brickwork. Virulent leptospira have been discovered living saphrophytically in the slime on the walls of Scottish coal mines by Buchanan.

I am much indebted to Major H. C. Brown of the Wellcome Bureau, who very kindly carried out the pathological investigations, and to Dr. D. I. Thomas of the Acton Fever Hospital for the account of the progress of the case while under his care.

BIBLIOGRAPHY

Brown and Davis: *Brit. Journ. Exper. Path.*, 1927, viii, 397.
Brown, H. C.: *British Medical Journal*, 1935, i, 411.
Buchanan: Ibid., 1924, ii, 980.
Schuffner: *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1934, xxviii, 7.

SEPTICAEMIA DUE TO BRUCELLA ABORTUS FOLLOWING OPERATION

BY

L. S. POTTER, M.B., CH.B.

AND

N. HARBURN, M.B., CH.B.

Much interest has been apparent in the last few years in the occurrence of an increasing number of cases of undulant fever in this country. That this increase is a matter of fact and not surmise is shown by reference to recorded cases: whereas in 1928 these numbered five, in 1930 they were twenty-eight, and in 1932 no fewer than fifty-seven.[1] The case here recorded, besides possessing unique features, raises several points of great interest, and we feel that no apology is needed for presenting it in detail. For the sake of clarity it seems best to describe the events in sequence, and to reserve comment until afterwards.

Case Report

A married woman, who had not lived with her husband for some years, consulted one of us in November, 1933, complaining of "irregular and excessive periods." She stated that for the previous two months she had only had intervals of from three to five days without menstrual loss, that she felt rather weak and tired in consequence, and that she had occasional backache and a sense of weight and bearing down. She is a well-built woman, rather florid in complexion, and at that time was 35 years old and weighed a little under 10 st. The previous history contained nothing of importance. She had had three children in six years, the youngest being 7 years of age; the last two confinements she described as being rather slow and followed by prolonged bleeding, which kept her in bed for six or eight weeks. Menstruation had always been regular but rather excessive.

Examination confirmed a diagnosis of early prolapse, accompanied, and probably caused, by subinvolution, and expectant treatment with tonics, ergot, and tampons of glycerin and alum was persevered with for some weeks. Temporary improvement not being maintained, however, she was seen by Dr. J. W. A. Hunter of Manchester, who wrote confirming the diagnosis as follows:

> The . . . vaginal walls are healthy but are definitely relaxed, and she has a fairly pronounced cystocele and a rather smaller rectocele. The cervix shows slight hypertrophy and is definitely lacerated and catarrhal, which would account for the long history of leucorrhoea. The uterus itself shows a fairly pronounced degree of subinvolution . . . she had a definitely prolonged puerperium after her last confinement and I think the subinvolution in all probability dates from this . . . there is some definite thickening in the left broad ligament between the ovary and the pelvic colon, probably as the result of a mild degree of infection from the colon. She suffers from some chronic left-sided pain, and this is accounted for by this condition. For treatment I would advise . . . a curettage to remove the thickened hypertrophied endometrium associated with the subinvolution in order to relieve her menorrhagia, a small amputation of the catarrhal cervix, and also an anterior and posterior colporrhaphy. . . .

Operation was performed as suggested by Dr. Hunter at the Buxton and District Hospital on June 13th, 1934, without incident, and recovery was rapid and uneventful until the eighth day, when the patient had a sudden haemorrhage. This was controlled by an injection of morphine, but recurred again at midnight the following night to a more alarming extent. As an injection of morphine failed to control the bleeding the vagina was packed with sterile gauze under light general anaesthesia, the pack being removed after fifteen hours. There was no further haemorrhage, but, as would be expected, there was a rise in temperature to 99.8°; this fell to normal the following morning.

ONSET OF SEVERE RIGORS

That afternoon, the eleventh after the operation, she had a smart rigor, which was repeated on the two succeeding days, the last being accompanied by a rise in temperature to 106.4°. Two injections of anti-streptococcal serum were given and a blood culture taken. As the serum seemed to have no effect non-specific immunization was attempted by injections into the buttock on alternate days of 10 c.cm. of whole blood (from her sister). This procedure had no apparent effect in reducing the temperature or controlling the rigors, so it was abandoned after four injections. During this phase, which lasted about a week, the patient, apart from the rigors, appeared quite comfortable, but the temperature remained at a fairly high level. The result of the blood culture, investigated by Dr. G. J. Griffiths, pathologist to the Devonshire Royal Hospital, showed a growth of a non-motile Gram-negative cocci-bacillus, fermenting glucose with gas production; subculture was negative. Agglutination tests with a large series of organisms proved positive to the *Brucella abortus* up to a titre of 1 in 640. (*Note.*—A positive test in blood serum from humans is not always proof of active infection. Many individuals have Brucella agglutinins in their blood from a past infection or from recent exposure to infective materials. *As a rule a high agglutinin titre 1 in 500 or over is evidence of active infection.*[2])

The course of the disease now entered upon a more dramatic phase, with terrific changes in temperature and shattering rigors occurring daily, occasionally twice a day. Some of these were almost unbelievable in severity, the patient being quite convulsed and the whole bed shaking; during the later stages the rigors were accompanied by delirium and were followed by slight confusion. They lasted usually about three hours and in each case were followed by profuse sweating, but in the intervals the patient was composed and cheerful and complained of no discomfort whatever, taking nourishment well and sleeping normally. In comparison with the prostration which usually occurs after a "bout of malaria," the attacks were followed by surprisingly little exhaustion. Treatment for the time being consisted of excess of fluids, with occasional salines, glucose, and quinine, and large doses of iron (ferri et ammon. cit.), which were well tolerated.

During the course of the illness the patient had no fewer than fifty-nine rigors, the temperature recorded (in the mouth) reaching 105° or over on twelve occasions, 106° or over on five, and 107° or over on seven: the highest reading being 107.8°. Cyanosis and dyspnoea were marked features, occasionally necessitating the use of oxygen. About a month from the commencement of the fever the patient began to show signs of cardiac distress, and became profoundly anaemic. A blood count taken on July 22nd showed a red cell count well under two million per c.mm., and haemoglobin 36 per cent. The white count was also low, but showed a marked relative leucocytosis (91 per cent.). Blood transfusion was performed on July 23rd and repeated on August 2nd, in each case being followed by a distinct clinical improvement. There were ten rigors in the succeeding week, and the average daily swing in temperature was 7.5°; after this the average height of the temperature subsided and the rigors became less intense.

The patient's condition, however, began to give rise to serious anxiety, dyspnoea and tachycardia persisting during the apyrexial intervals, albumin appearing in the urine, and oedema in both ankles. On August 27th another 400 c.cm. of blood was given by transfusion, and this seemed to mark the turning-point in the infection, there being only two more slight rigors, and within three days the temperature had returned to normal, where it remained, the pulse-rate taking a few days longer to reach normal levels. The duration of the fever was ten weeks. A blood count a fortnight later showed red corpuscles 2,500,000 per c.mm. and haemoglobin 48 per cent. The blood serum tested against the *Brucella abortus* showed agglutination up to 1 in 160. (*Note.*—If the serum agglutination titre of an individual is found to be slowly decreasing as shown by a repetition of tests at intervals of thirty to sixty days, it is evidence of recovery from infection.[2])

The patient was discharged from hospital sixteen and a half weeks after operation, free from symptoms, and weighing 8½ st. A blood count showed red cells 4,180,000 per c.mm. and haemoglobin 68 per cent. Since discharge she has had signs of subacute arthritis, but after the extraction of several teeth under general anaesthesia this has quite cleared up; the dental operation was unaccompanied by any form of reaction. She is now, after six months, quite well and strong, and weighs 10 st.; incidentally the symptoms for which she originally sought advice are cured!

Discussion

Infection by *Brucella abortus* in man resembles infection by the *Brucella melitensis*, but is generally supposed to be milder in type, though severe and fatal cases are not unknown. Hughes describes three types of melitensis infection (Malta fever), the common form lasting two or three months and characterized by irregular attacks of pyrexia, sweating, anaemia, and rheumatic pains, giving to the disease its name of undulant fever. He also describes a mild type and a malignant type, the latter associated with profound toxaemia and hyperpyrexia with death in a few days. Bassett Smith adds two further varieties: an ambulatory or carrier type, and an intermittent type causing severe illness characterized by hectic temperature, profuse sweating, and wasting.[3] One is justified, we think, in dividing the case described above into two phases corresponding to Bassett Smith's ambulatory and intermittent types: a stage associated with a localized infection without constitutional reaction and of indefinite duration; and a septicaemic stage, the outstanding features of which were the hectic temperature and succession of rigors, and the absence of toxaemia, rheumatic pains, anorexia, and depression that are usually prominent symptoms.[3]

Dalrymple-Champneys,[1] describing the condition, states:

"It is almost certain that infection resulting in immunity can occur without recognizable clinical disease; there is a possibility that the majority of bovine strains in this country have a low pathogenicity for man. Finally there is the possibility that a lowering of the individual's resistance due to some other cause opens the door to infection."

These suppositions, particularly the last, are amply borne out in this instance, where a general dissemination and septicaemia superseded a localized infection as a result of the lowered resistance following operation.

In this connexion it is perhaps justifiable to assume that, since the exact time of operation and the time of the onset of symptoms indicating generalized infection are known, the incubation period of *Brucella abortus* infection in man is about eight to ten days. There is little or no evidence on this point, and opinions vary as to the incubation period of *B. melitensis* infection, some putting it at eight to ten days, others at fourteen to fifteen days, and in the laboratory it is found to be as low as five to six days.[3] Huddleson[2] writes as follows: "The length of time between exposure and the first onset of symptoms in undulant fever may vary from seven to twenty days."

ORIGIN OF INFECTION

We have no direct proof as to the origin of infection in this case, but there can be little doubt that it was milk-borne. We have circumstantial evidence of an outbreak of epidemic abortion in the herd from which the milk supply was obtained, but as this was some years ago, and we have no knowledge of any recent tests, it is unlikely that it has any connexion with the case. A further difficulty arises since the patient for several months before her illness had worked at a place some miles from her home, necessitating a daily journey by train. The area of possible sources is thereby widened considerably, and we are not aware of any other cases where the diagnosis has been confirmed by which the field of search for a probable source of infection could be narrowed.

There is no positive evidence that *B. abortus* infection can cause abortion in women, but it must be regarded as a possibility. Reference to the literature suggests that the cause of abortion in cattle is a pathological change entirely confined to the placenta ; and that the animals only abort once, which is unlikely were the uterus the seat of a chronic infection.[3] In guinea-pigs examined after experimental Brucella infection " macroscopic lesions in the female genital organs are so rare that they are of no importance for routine diagnosis."[2]

Although a considerable number of post-mortem examinations have been made on fatal cases of undulant fever (presumably *melitensis* infection), few gross changes, with the exception of an enlarged spleen and superficial lymph glands, have been attributed directly to invasion of Brucella.[2] In the case under discussion there was no palpable enlargement of the spleen or lymph glands, and one may assume that the intermenstrual bleeding was the result of a chronic endometritis due to *B. abortus* infection. There is, of course, no means of proving this, and, as Dr. Hunter's letter (vide supra) points out very clearly, every symptom and sign could be accounted for by a diagnosis of subinvolution. On the other hand, the time factor, the rather sudden onset of symptoms, and the presence of a localized parametritis " probably as the result of a mild degree of infection from the colon," and lastly the onset of acute symptoms following trauma to the cervix and vaginal vault, support the former view. Until corroborative evidence is forthcoming one would hardly dogmatize on this point ; it may be that in the textbooks of the future, among the many causes of menorrhagia will be numbered " infection by *Brucella abortus*."

One would like to think that blood transfusion had in this case been the means of conferring a passive immunity, but here again it is impossible to dogmatize. We are, however, satisfied that it saved the patient's life by supporting the failing circulation, on which the brunt of the effects of the infection fell. In spite of the usual assumption that " the treatment coincident with recovery gets all the credit," there is no doubt at all that, clinically, the improvement after each transfusion was very definite and out of all proportion to the change in the blood picture. The significant fall in the agglutination titre is also suggestive, and with the evidence afforded by the chart is in our view conclusive.

Summary

From a consideration of the case above recorded one is justified in assuming:

1. That infection by the *B. abortus* does occur without recognizable clinical symptoms and may remain latent for an indefinite period.

2. That the incubation period in acute infections is probably eight to ten days.

3. That the *B. abortus* may cause localized chronic inflammatory lesions in man.

4. That blood transfusion may be the means of conferring a non-specific passive immunity (complement) in septicaemic infection.

In conclusion, we should like to record our appreciation of the help of Dr. G. J. Griffiths, pathologist to the Devonshire Royal Hospital, to whose willing efforts the successful issue was largely due ; and to thank Drs. J. W. A. Hunter and T. H. Oliver of Manchester for their interest and co-operation.

REFERENCES

[1] Dalrymple-Champneys, Sir W.: *Lancet*, 1934, i, 95.
[2] Huddleson, I. F.: *Brucella Infections in Animals and Man*, 1934.
[3] Dalrymple-Champneys, Sir W.: *Undulant Fever*, Ministry of Health Reports on Public Health and Medical Subjects, No. 56, 1929.

WEIGHT-BEARING INSTRUMENTS FOR WALKING

BY

HUGH C. TRUMBLE, F.R.C.S.ENG., F.R.A.C.S.

SURGEON, AUSTIN HOSPITAL, MELBOURNE ; SURGEON TO OUT-PATIENTS, ALFRED HOSPITAL

In another paper[1] I have described an instrument which is designed to relieve one of the lower limbs of the strain of weight-bearing in standing and walking. The apparatus provides a saddle upon which the patient sits firmly whilst taking a step with his sound limb. It may be of some interest to contrast the apparatus with the well-known and widely used " calliper " splint, which is a modification of Thomas's knee appliance for walking.

Weight-bearing

The centre of gravity of the body in the erect position lies in the mid-sagittal plane or thereabouts. When a person with normal lower limbs stands with his weight evenly distributed on both he is in a state of stable

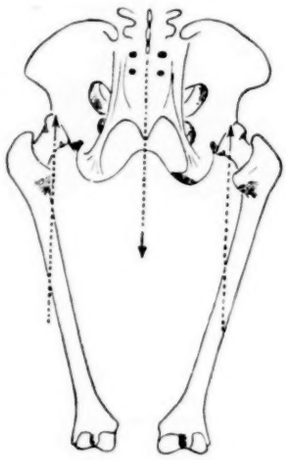

FIG. 1.

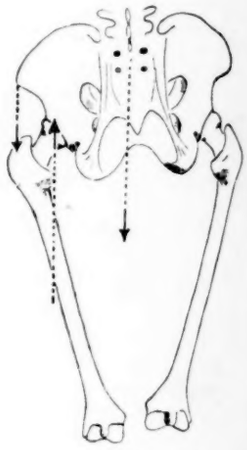

FIG. 2.

FIG. 1.—Diagram to show the distribution of the lines of force when the subject's weight is evenly distributed between the two lower limbs, as seen from behind. The centre of gravity of the body lies approximately in the mid-sagittal plane. The down-pointing arrow represents the resultant of the forces bearing downwards on the femoral heads, which are widely spaced and effectually prevent any rotation of the pelvis in the coronal plane. The muscles passing vertically from the ilium to the great trochanter are not called into play.

FIG. 2.—Diagram to show the lines of force when the subject stands on his left leg, as seen from behind. The body weight centres over the left foot. The head of the left femur supports the body weight, and acts as a fulcrum. The pelvis is prevented from rotating round this fulcrum by the contraction of muscles passing from the iliac wing to the great trochanter and fascia lata of the thigh. Note that the right side of the pelvis is held higher up than the left.

equilibrium in the coronal plane, and little muscular effort is necessary to preserve this state (Fig. 1). When he lifts his right leg from the ground he will fall to the same side unless, consciously or unconsciously, he alters his position so as to bring his centre of gravity over his left foot, and brings into play muscles which oppose the tendency of the pelvis to rotate round the head of the left femur in such a way that the right ilium falls and the left rises. It is well known that when a normal person stands on his left leg the right side of the pelvis rises higher than the left, and vice versa. This is brought about largely by the contraction of muscles passing more or less vertically between the wing of the ilium on the one hand and the great trochanter and fascia lata on the other, on the weight-bearing side (Fig. 2). The

[1] " A Saddle Appliance for Bearing the Body Weight," *Australian and New Zealand Journal of Surgery*, 1934, iii, 270.

action of these muscles is easily appreciated by palpating them whilst the body weight is transferred from one foot to the other. The muscles are felt to harden and relax appropriately. Those chiefly concerned are the gluteus medius and minimus, and the tensor fasciae latae.

When a calliper splint is applied so that it transmits the weight of the body from one ischial tuberosity to the ground, a somewhat similar state of affairs exists. The fulcrum on which the pelvis tends to rotate is shifted from the femoral head to the ring of the apparaus bearing on the ischium. On raising the sound limb from the ground muscular effort is still required to prevent the pelvis falling on the opposite side, and the muscles concerned are the same as before, together with certain others which may now act similarly (Fig. 3). Thus it follows that the neck and head of the femur, as well as the hip-joint and pelvic girdle, are subjected to stresses resembling closely those produced by standing on one leg. If the calliper splint is fitted with the idea of relieving the neck of the femur or the hip-joint of strain, it fails to some extent in its object. Nor is the limb below the

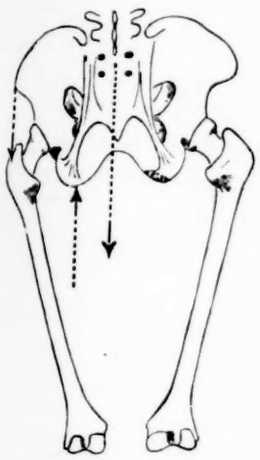

FIG. 3.

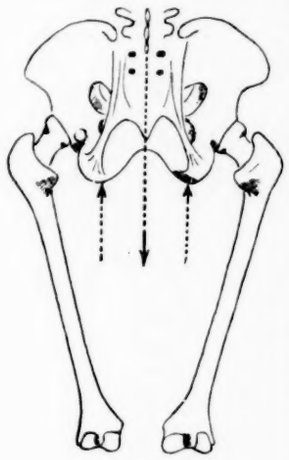

FIG. 4.

FIG. 3.—Scheme to show the system involved when a calliper splint is fitted. The left ischial tuberosity bears on the ring of the splint. The body weight would cause the pelvis to rotate on the fulcrum provided by the ring were it not for the active contraction of muscles passing from the iliac wing to the great trochanter. It is to be noted that this activity tends to force the pelvis against the head of the femur and to bring the limb into a position of abduction at the hip-joint.

FIG. 4.—Diagram to show the state of affairs when the saddle splint is used. The lines of force are disposed in a way somewhat similar to that seen in normal standing on two legs (Fig. 1). The vertical muscles passing between the iliac wing and the great trochanter are not called into play, so that the left limb merely dangles from the pelvis by its own weight.

great trochanter altogether spared. Suppose that the shaft of the femur has been fractured three inches below the great trochanter. When the patient stands on the calliper the muscular effort described above tends to draw the great trochanter towards the wing of the ilium, with the result that the upper fragment tends to become abducted at the hip-joint. The weight of the limb below the seat of fracture and the splint itself (including the boot, which is really part of the apparatus) prevent this part of the limb from conforming to any such movement of the upper fragment. If, however, union at the seat of fracture is weak and bending is still possible, angulation is likely to result. The nearer the fracture to the great trochanter, the greater is the danger of angulation resulting. As the distance increases, the forces tending to produce the deformity act at a greater disadvantage and eventually become negligible.

When my instrument is fitted and the patient raises his sound limb from the ground the pelvis is supported by the apparatus at two points—the ischial tuberosities—and the centre of gravity of the body lies in a sagittal plane approximately midway between these points (Fig. 4). The pelvis displays no tendency to rotate in the coronal plane, and no muscular effort is required to counteract the force of gravity. The affected leg merely dangles from the pelvis. Thus the hip-joint and the whole of the limb below this are entirely freed from the strain of weight-bearing and also from the stresses set up by the action of muscles in the region of the hip-joint. The weight of that part of the limb situated below any lesion, whether in a joint or in the shaft of a bone, acts as an extending force, thus militating against angulation or compression at the site of the lesion. The patient provided with a saddle splint may reasonably be permitted to walk at an earlier date than with a calliper splint.

Comfort

The calliper splint bears on one ischium only. If it does its work efficiently a very small area of skin is called upon to withstand compression between bone and splint brought about by the whole weight of the body. When the saddle splint is used, the compression is so distributed that its intensity is approximately halved. In practice patients do not complain of discomfort from pressure when the saddle splint is properly fitted, and some, with only partly consolidated fractures of the femoral shaft, have walked five miles without ill effects. I have not been able to satisfy myself that a calliper splint, which is really transmitting the whole of the weight of the body to the ground, can be made so comfortable. If the splint is too short, it does not serve as anything but an encumbrance.

Fitting of the Apparatus

It appears that the fitting of a calliper splint is peculiarly difficult. I have heard it said by a surgeon in London that there is only one firm in that city which is able to manufacture a satisfactory apparatus, while he understands that in a certain provincial centre it is held that there is no such firm outside that centre. Be this as it may, the fact that experts have difficulty in obtaining efficient splints may be used to emphasize the point that others less expert and with less expert technical assistance seldom obtain happy results.

The saddle splint, on the other hand, has proved to be quite easy to make and so adaptable that one size of saddle may be used for many patients. The same splint may be used for a right or left limb, the change over necessitating only minor alterations at the lower end of the apparatus. Many of the parts may be made of standard sizes and kept in stock for use when required.

H. Curschmann (*Deut. med. Woch.*, February 22nd, 1935) challenges the textbook teaching that chronic leukaemia is a disease of middle age. An analysis of fifty-one cases observed in Rostock showed that only seventeen patients were between the ages of 14 and 49, whereas thirty-four were between the ages of 50 and 70. More recent statistics in the same town and hospital tell the same tale. During the past nine years Professor Curschmann has observed about 100 patients, twenty-seven of whom were between the ages of 61 and 75. He finds it difficult to explain this hitherto unobserved preference shown by leukaemia for elderly persons. There are, to be sure, comparatively more elderly folk in the community than there used to be, and it may be that diagnosis in this respect has improved of late. But probably these two factors do not account for the whole of the rise in the number of these cases, whose genesis remains as obscure as ever. As for diagnosis, most of the chronic and all the acute cases came to hospital under mistaken diagnoses, such as cardiac insufficiency, cancer, influenza, bronchopneumonia, purpura rheumatica, etc. Were the frequency of leukaemia in old age to be generally appreciated, these mistakes would be avoided.

Clinical Memoranda

Calcinosis with Scleroderma in an Adult Female

In view of the rarity of the condition the following case encountered in a female patient was deemed worthy of publication.

CASE REPORT

In March, 1934, a single woman, aged 27, was admitted to the Royal Northern Infirmary complaining of generalized joint stiffness, particularly affecting the hands and feet, for three years. She also complained of small, hard, and tender swellings on the palmar aspect of the hands and on the thighs, and shooting pains up the flexor aspect of the right forearm from the hand.

History

A detailed interrogation elicited the following history. Three years ago the patient had had influenza and a severe "septic throat," and soon afterwards measles. She was admitted to Dunbar's Hospital, Thurso, for ten weeks, and while there lost her voice for about three weeks. On discharge she felt quite fit, but a little later complained of stiffness in all the joints, particularly the small joints of the hands and fingers. This stiffness has persisted more or less constantly. The general health, however, was good.

Ten months ago she noticed small, hard, and tender swellings appearing on both hands and in the hip regions. Usually these became slowly larger and eventually burst, a quantity of white matter escaping. For about the same length of time she noticed a gradually increasing contracture of the fingers of the right hand, and very recently a similar contracture started in the left hand. She also complained of shooting pains up the front of the forearm, the pains starting in front of the right wrist. There was no definite weakness of the limbs. The skin had been dry and discoloured in patches for the past three years. The appetite was good and the bowels regular; there was slight lassitude. The menstrual history revealed nothing abnormal, and there was no rheumatic history. The patient had always been healthy and about.

Physical Examination

The patient was a thin, poorly developed female, aged 27, with a mask-like facial expression, and a body weight of 6 st. 3 lb. The skin over the whole body was extremely scaly, especially over the facial and cervical regions, which were shiny and tense, the skin being almost transparent in these areas. Generalized areas of pigmentation of the skin were noted, these being more marked on the anterior abdominal wall and in the pelvic regions. What were seemingly subcutaneous nodular swellings were found on the palmar aspect of the hands, on both buttocks, and on both shins. The swellings were hard and irregular in shape and immobile, varying in size up to that of a hazel nut; the skin was raised over them, drawn, and tense.

There were varying degrees of limitation of movement in most of the joints, and claw-like contraction of the fingers of the right hand, the left hand being similarly affected to a less degree. The gait was stiff-legged, as described in a similar case by Kennedy (1932).[1] The only other system affected was the central nervous system. All reflexes were present except the biceps-jerk on the right side. Some muscular atrophy was present in the thenar and hypothenar eminences of the right hand. There was marked hyperaesthesia over the already described nodular swellings.

Laboratory and Radiological Examinations

The Wassermann reaction and the Kahn test were negative. Two specimens of blood examined for blood calcium by two independent biochemists at similar times yielded: 10.4 mg. per cent., and 9.8 mg. per cent. respectively. Electrical reactions were carried out on both upper extremities, but no abnormalities were found.

Radiological examinations revealed irregular subcutaneous calcareous depositions overlying both ischia, the greater trochanters of both femora, the left ilium, and the soft tissue above the greater trochanter on the left side. There were similar opacities overlying the head and the mid-third subcutaneous surface of the left tibia. Similar deposits were demonstrated on the palmar surface of hands and forearms.

A ketogenic diet was recommended similar to that adopted successfully by Kennedy. The patient was discharged from hospital on May 12th, 1934; her progress since then has not been elicited, but she is to report at a later date for a further examination.

SUMMARY

A case of scleroderma and calcinosis has been described in an adult female, aged 27. Many features presented by the patient were similar to those described by Kennedy of the Mayo Clinic in a case observed in a girl aged 6. It is noteworthy that in both these cases the blood calcium levels were found to be within normal limits, and there appeared to be no cause for the onset of the condition.

My thanks are due to Mr. Hugh Miller of the Royal Northern Infirmary, Inverness, for permission to publish the notes of this case.

IAN R. MILNE, M.B., CH.B,
House Surgeon, Royal Northern Infirmary.

Inverness.

[1] *Proceedings of Staff Meetings of Mayo Clinic*, 1932, xii, 329.

Unusual Urethral Calculus

Slippery elm appears to enjoy considerable reputation as an agent for inducing abortion. Possibly some reader of the *British Medical Journal* can explain the origin of its popularity. Owing either to ignorance of anatomy or to lack of dexterity it is occasionally introduced into the bladder instead of the uterus. In the case described below the piece of bark must have lodged in the urethra.

A married woman, aged 27, and eight and a half months pregnant, was admitted to the Northampton General Hospital as a case of albuminuria. She was noticed to have incontinence of urine, and further investigation revealed the presence of a large calculus in the urethra. This was too large to crush, so I incised the urethra from the vaginal aspect, removed the stone, and sutured the wound in the urethra. The stone was somewhat conical, one ounce in weight, 2½ inches long, and 1¼ inches wide at the broad end. The small end was situated at the urethral orifice. On dividing the stone a woody basis was found.

I am indebted to Mr. Vernon Ashford, honorary photographer to the hospital, for the excellent photograph.

C. C. HOLMAN,
Honorary Surgeon, Northampton General Hospital.

Reviews

A BIOGRAPHY OF TYPHUS

In *Rats, Lice and History*[1] Dr. HANS ZINSSER, Professor of Bacteriology and Immunology at Harvard, discusses the life-history of typhus fever "with twelve preliminary chapters indispensable for the preparation of the lay reader." Those introductory chapters should prove full of interest, not only for the lay reader but for the clinician, bacteriologist, and epidemiologist also. Professor Zinsser originally contemplated a brief study of the disease from the "biographical point of view"; but, on talking the matter over with a literary friend, he was enticed into a preliminary "Discussion of the Relationship between Science and Art," and was then further deflected into "Contemplation of the General Methods of Biographical Writing"; thereupon followed consideration of the methods of Eddington and Jeans, who "incline to limit science" to the metrical or mathematical descriptions of phenomena; and thus our author narrowly escaped being led away into "that fiction of optimism about human achievement which—it has been said—thrives most vigorously in lunatic asylums." He is even inveigled into referring to Whitehead, and in disagreeing with him "feels much like a Neanderthal man attacking a mastodon with a bean shooter." These diverting experiences happily showed Professor Zinsser that it was safe "to go ahead with his biography of typhus"; but he felt impelled to digress once more "On the Origin of Life," and to comment on the influence exerted by "distinguished minds" like those of Millikan and others, who take wing from the ultimate peaks of exact science into the stratosphere of an old-fashioned heaven; on this ensued further digressions on enzymes, on so-called "new diseases," and on search for typhus among the diseases of the ancients, with particular notice of the fall of Rome, of the influence of epidemic diseases on military history, and of "the relative unimportance of generals."

In Chapter IX, however, we at length actually encounter the louse; in Chapter X there is "More about the Louse," and in Chapter XI "Much about Rats—a Little about Mice"; while in Chapter XII we "approach the subject of this biography directly." Thus Chapter XIII deals with "The Birth, Childhood, and Adolescence of Typhus," with its two varieties, "the murine type"—in which the rat-flea cycle precedes human infection—and the classical "human type," for which no rat origin has, as yet, been determined. It appears probable, we are told, that isolated "endemic" rat-to-man or mouse-to-man cases of typhus occurred centuries before the disease became epidemic, recognized, and differentiated. "In the Malay States to-day there is a concentration of endemic cases of tropical typhus among workers on oil-palm plantations where rats abound. . . . Similar conditions prevail in regard to Tsutsugamushi." Professor Zinsser has a footnote, in which he says: "Nobody won the last war except the medical sciences. The profit was not worth the loss, but the increase in sanitary and medical knowledge was the sole determinable gain for mankind in an otherwise utterly disastrous catastrophe." Chapter XV, it should be mentioned, concludes with a brief reference to English "gaol fevers," to Thomas Willis and Murchison, and to the work of John Howard. The concluding chapter of this most interesting volume deals with future prospects, emphasizing the need for cleanliness and for extension of the "co-operative forces of modern civilized society."

This book will surely be studied with great interest by the lay reader, for the claim made by its publishers—that it presents "a fascinating blend of scientific and historical research, humour, and stimulating opinion on almost every subject of interest to the contemporary world"—cannot be gainsaid. The bacteriologist may perhaps treat it as Professor Zinsser thinks (p. 13) he treats de Kruif's "thriller on Men against Death." The epidemiologist will ponder when he reads (p. 216) that the initial stages of typhus resemble closely those of severe influenza; and he will undoubtedly welcome the professor's scepticism, which is shared by Dr. E. W. Goodall, regarding "new diseases." He will, moreover, of course agree with much said, in Chapter IV, "on the necessity of considering the changing nature of infectious diseases." Indeed, the epidemiologist, at this point, may begin to long for the time when Professor Zinsser may embody (in a future volume) references to Sydenham's *Medical Observations*, to Charles Creighton's *History of Epidemics*, to the Ministry of Health's Report on the 1918–19 Influenza, perchance also to Crookshank's *Influenza: Essays by Several Authors*. The epidemiologist may even entertain the hope that Professor Zinsser's book marks a further step as regards co-operation between bacteriologists and epidemiologists; and on turning to page 293 he will read: "Organized Government agencies are exchanging information concerning epidemic diseases; sanitarians, bacteriologists, epidemiologists, and health administrators are co-operating, consulting each other, and freely interchanging views, materials, and methods, from Russia to South America, from Scandinavia to the Tropics." The continuance of this friendly co-operation is indeed a consummation devoutly to be wished.

[1] *Rats, Lice and History*. By Hans Zinsser. London: George Routledge and Sons, Ltd. 1935. (Pp. 301. 10s. 6d. net.)

FILTERABLE VIRUSES

In his book *Die Unsichtbaren Krankheitserreger: Filtrierbare Vira*,[2] Dr. JOSEF BALÓ attempts a presentation of our knowledge of this subject in the small compass of 300 pages. When one recalls the considerable additions which recent research has made, not only to the list of diseases caused by such agents but also to our knowledge of the individual viruses, it is hardly surprising that Dr. Baló's treatment of the subject should, at times, be a little inadequate. This is to be expected in a comprehensive review compressed into so small a space. However, the surprising thing is not what has been left out, but the amount of information which has been incorporated in the different sections of this book. The author appears to have an extensive knowledge of the literature of viruses, and little of importance has been overlooked. Perhaps his knowledge of published work of the last two or three years is not quite as complete as it is of the earlier virus literature, and this has led to some unfortunate omissions. Recent work on the filtration of vaccinia and the identification of the Paschen body with the virus receives no mention, and the same is true concerning the work on psittacosis virus identifying the demonstrable particles with the virus. These omissions strike one more forcibly, perhaps, because they are exceptional; the book is a reasonably comprehensive survey of the subject, and the references to the literature at the end of each section constitute one of its valuable features.

The first forty pages or so of this book are given up to a consideration of the general characteristics of filterable viruses, their size, "stainability," cultivation, cytotropism, and so forth. The remainder of the book is made up of sections devoted to the individual viruses, and not only do most of the animal viruses receive consideration, but the bacteriophage, viruses causing diseases

[2] *Die Unsichtbaren Krankheitserreger: Filtrierbare Vira*. By Dr. Josef Baló. Berlin: S. Karger. 1935. (Pp. 311; 39 figures, 3 coloured plates. RM. 24.)

in insects, some of the plant viruses, and the filterable phase of the tubercle bacillus and other bacteria are also dealt with. Concerning this special section there is little to add to what has already been said. It is somewhat uneven perhaps, and there are occasions when the information in this part of the book is at variance with what appears in the general section. In the special section on herpes, for instance, it is stated that the complement-fixation reaction cannot be obtained, yet in the account of the serological reactions in the general part reference is made to work showing that herpes virus and its antiserum gives this reaction. Generally speaking, however, the accounts of the different virus diseases and their causal agents are quite accurate, if somewhat sketchy.

The book is a useful addition to virus literature. It contains an adequate subject index and a limited number of illustrations, a few of which are in colour.

ANAESTHESIA IN GENERAL PRACTICE

Monographs on anaesthesia are written as a rule, and quite naturally, by specialists, or at any rate by those who hold hospital appointments; and however much they endeavour to make their teaching practical their tendency is always to stress the ideal to be striven for rather than the second best which may be the most practicable for the general practitioner without a very extensive experience. Dr. HELEN LUKIS, whose Sir Charles Hastings Prize Essay for 1934 is now published,[3] approaches the consideration of anaesthetic problems from the practitioner's angle, dealing with every side of anaesthesia from this unaccustomed standpoint. As a matter of fact, it is obvious throughout from the treatment of all kinds of recondite questions that Dr. Lukis is herself a highly skilled anaesthetist, fully conversant with the best and latest developments of modern anaesthesia. She could, one can easily imagine, write a textbook from the specialist's viewpoint if she wished to; but many others have done that before, whereas her essay is something hitherto unattempted, or if attempted certainly not equalled. It follows that her book must make a very special appeal to the general practitioner who is fairly often called upon to give anaesthetics and is not willing to wade through bulky textbooks to gain the help he may feel he needs; though it is perhaps well to warn him that Dr. Lukis's standard of general practitioner competence is a high one, and that she is by no means disposed to regard theoretical short cuts to skill in this branch of medicine as profitable substitutes for constant practice and close observation of every individual case. To sum it up, her aim is always the best for the patient, coupled with the recognition that what is best in the hands of one type of administrator is not necessarily the best in the hands of another type. To those who read this excellent essay it will not appear strange that it was awarded the Sir Charles Hastings Prize last year by the Council of the British Medical Association: it belongs to the same genus as those precious stand-bys of a generation ago, Murrell's *What to Do in Cases of Poisoning*, and Herman's *Difficult Labour*, in the library of the general practitioner.

THE COMPLEAT MATRON

Hospital Administration for Women[4] should be a standard textbook for every nurse, and should also be given to those who are contemplating adopting that profession. In a "pull-out" at the end Miss MACMANUS summarizes a scheme of administration for a voluntary hospital in a form which looks like the genealogical table of an exceptionally prolific family. This represents a very fair summary of the breadth of her insight and the remarkable grasp she manifests of every detail connected with hospitals, not only in this country but also abroad. Writing as the matron of Guy's Hospital, she is in a position to describe from first-hand experience the nursing aspect of a large voluntary hospital with a medical school and training schools in radiography and massage. She writes with equally intimate knowledge of the peculiar difficulties of nursing in Egypt, Africa, India, China, the subarctic zone, and under canvas, listing and illustrating such curious methods of transport as camel cradles and mule cacolets. She has appendices on dietary, linen inventories and tenders, and standing orders for hospital superintendents. She works steadily through the various departments of the hospital, including the duties of each member of the personnel and the furnishings of their offices, with many shrewd comments on interrelationships and details, and ample specimens of lists of duties for everybody from the matron to the daily cleaning-woman. Such points as death-bed marriages, forms of wills, and emergency baptism do not escape her. It is difficult to imagine any department which she has not surveyed with an all-seeing eye. Miss Macmanus writes clearly and simply, and the book is pleasantly got up.

ENCYCLOPAEDIA OF MEDICINE

With volume xii and the index volume the massive *Cyclopaedia of Medicine*,[5] edited by Drs. G. M. PIERSOL (editor-in-chief) and E. L. BORTZ (assistant editor) is now complete. Ranging from "tendons, surgery of" to "zingiber" and "zona," the last volume of just over 1,000 pages keeps to much the same standard as its predecessors. That is to say, while intended essentially for the general practitioner its contents as regards individual monographs are often far too detailed and complex for this audience. Indeed, a section on thrombosis, by J. W. Pickering of London, based on 113 references, is an excellent critical summary of the whole subject which would not disgrace the most erudite medical journal, while adjacent to this we find an account of thrombo-angiitis obliterans by Leo Buerger which is a most valuable exposition—for experts—of this authority's views. The index volume comprises just over four hundred pages, and is so arranged that the permanent cover can be slipped off. This is because, as announced by the publishers, with each annual supplement a complete new index filler will be furnished to replace the existing index. No concession has been made to spelling differences on the two sides of the Atlantic, so that the English inquirer will look in vain for "oedema" or "oesophagus" under "o," although "oestrin" has been cross-indexed.

INJURIES TO THE SOFT TISSUES

The title of *Injuries and their Treatment*[6] leads one to expect a formidable textbook dealing exhaustively with the subject, but actually this small volume by Mr. ELDON TUCKER is limited in scope. It is confined almost entirely to the consideration of soft tissue injuries uncomplicated by skin wounds, such as bruises, strains, and sprains incurred in the playing field. Of these the author writes in a singularly straightforward and practical manner. In the opening chapters he discusses the pathology of injuries

[3] *Problems of Anaesthesia in General Practice*. By D. H. Lukis, M.D., B.S. London: Hodder and Stoughton Limited. 1935. (Pp. 158. 7s. 6d. net.)

[4] *Hospital Administration for Women*. By Emily Macmanus. London: Faber and Faber Ltd. 1934. (Pp. 15s. net.)

[5] *The Cyclopedia of Medicine*. Vol. xii and Desk Index. Editor-in-chief, G. M. Piersol, B.S., M.D. Amply illustrated with cuts and full-page black-and-white and coloured plates. Philadelphia: F. A. Davis Company. 1934. (120 dollars.)

[6] *Injuries and Their Treatment*. By W. Eldon Tucker, M.A., B.Ch., F.R.C.S. London: H. K. Lewis and Co. Ltd. 1935. (Pp. xii + 174; 80 figures. 9s. net.)

and the need for suitable treatment at the earliest possible moment to dispel excessive traumatic effusion and prevent the formation of adhesions. He advises aspiration of the fluid in many cases, but he does not seem to realize that a good deal of this excessive effusion could be dispersed more comfortably for the patient by the early application of the direct current.

In most cases the treatment advocated is effleurage under infra-red or radiant heat, suitable gentle manipulations and movements, faradic contractions, and diathermy. Many manipulations are described and illustrated, but it is not always clear whether these are to be attempted by the general practitioner inexperienced in such work or reserved for the specialist. What is emphasized is the great value of frequent small manipulations and voluntary contractions in restoring function, especially in chronic cases, where any attempt at more forcible manipulations might be followed by an exacerbation of symptoms. These movements are often thoughtlessly omitted when other physical measures are prescribed, with the result that progress towards recovery is inevitably delayed.

Mr. Tucker makes some very helpful suggestions about the possible causes contributing to delay in recovery. His book is simple and brief, but it will achieve much if its teaching, especially as regards early treatment, is applied, and it should also lead to the more intelligent prescribing of physical treatment. Of topical interest are the remarks about the different methods used by osteopaths and bone-setters. But perhaps the most valuable chapter in the book is that on economic considerations and conclusions. This deserves immediate serious study by hospital staffs and administrators, insurance companies, and all who, directly or indirectly, are concerned with the treatment of injuries.

Notes on Books

Old Age: Medically Considered[7] is a reprint of twelve papers from the *British Journal of Physical Medicine*, introduced by its editor, who also contributes a pleasantly written essay on the importance of exercises and recreations in the prevention of deterioration, and emphasizes the advice that the old must not live in the past, but take a keen interest in the present and the future, in order to be happy. The fundamental question of diet is authoritatively dealt with by Dr. Robert Hutchison, who recommends a little alcohol as a stimulant to appetite, or, for those who dislike that, a claret-glassful of hot water, sipped slowly at the end of a meal. He quotes from Ecclesiastes, and is followed by those who describe the items in that depressing catalogue of senile disabilities: vision, by Mr. F. W. Law; hearing, by Mr. G. Cathcart; and dental disease, by Mr. F. Talbot. The important subject of prostatic obstruction is well handled by Mr. Ainsworth-Davis, and cardiovascular disease is considered by Dr. MacNaught, and its treatment by ten physical methods is in the skilled hands of Dr. T. Jenner Hoskin.

The last instalment of the *Annals of Medical History*[8] contains a larger number of short articles than usual, but some of these, such as Dr. E. T. Sage's account of *Satiricon*, the earliest specimen of prose fiction and one of the few novels ever subjected to extended medical commentary, are of unusual interest. It was written by Petronius, the adviser of Nero on matters artistic, and not a medical man, though he wrote of disease in a realistic fashion. In an essay on the blood-letting controversy in the nineteenth century Dr. Randolph ascribes the first protest against its energetic use in pneumonia to Dr. Anthony Thompson in 1846. In a well-illustrated article Professor R. H. Major, author of *Classic Descriptions of Disease*, sketches the life of Johannes Lange of Heidelberg, who in the sixteenth century gave the first description of chlorosis. The strained relations between Godfried Bidloo of Amsterdam and William Cowper, anatomists both, and authors of works on the subject, are related by Dr. Beekman; the Dutchman had published some fine plates, which later appeared in Cowper's *Atlas*, and the former, a pugnacious professor, did not bear this in silence. Dr. Lawrason Brown, in the first part of an American tribute to Robert Koch, describes the state of bacteriology, hygiene, and tuberculosis before Koch, and takes the story to the period just after the discovery of the tubercle bacillus in 1882. Professor E. R. Long gives a historical sketch of Addison's description of idiopathic anaemia in 1855, in the same monograph as that on the disease of the adrenals. Other articles are directed to keeping green the memories of the following American men of eminence in their day: Charles Caldwell, La Fayette Guild, G. P. Judd, Stephen Elliott, and Edward Purcell, the first physician in Minnesota.

The little book entitled *Hygiene for Freshmen*,[9] by Dr. ALFRED WORCESTER, whose work on *Sex Hygiene* was noticed in these columns on March 30th, consists of twelve chapters, containing the substance of lectures delivered to Harvard freshmen on elementary physiology, mental hygiene, reproduction, prevention of disease, and immunity. Questions on the contents are appended to each chapter. As in the previous works the advice given is sound, and is clearly expressed.

The little book on *Science and Education in the U.S.S.R.*[10] by Professor A. PINKEVICH, which forms the twelfth volume of the New Soviet Library, contains an interesting account of the intensive educational campaign which is carried on in all departments of knowledge throughout Soviet Russia. The chapter of special interest to our readers will be that on scientific research work which enumerates the institutes for medical research and the results achieved.

[7] *Old Age: Medically Considered.* With a foreword by R. King Brown, M.D., D.P.H. London: The Actinic Press Ltd. 1934. (Pp. 96. 3s. net.)

[8] *Annals of Medical History.* New Series, vol. vii, No. 2, March, 1935. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc; London: Baillière, Tindall and Cox. Pp. 99–200; illustrated. Volume of six numbers, £2 15s.; single number, 12s. 6d.)

[9] *Hygiene for Freshmen.* By Alfred Worcester, A.M., M.D., Sc.D. Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1934. (Pp. viii + 151. 7s.)

[10] *Science and Education in the U.S.S.R.* By Professor A. Pinkevich. London: Victor Gollancz Ltd. 1935. (Pp. 176. 3s. 6d. net.)

Preparations and Appliances

ERGOMETRINE

Ergometrine is a pure preparation of the new and important alkaloid of ergot, the existence of which was indicated by the work of Chassar Moir, and which was isolated and identified by Dudley. The isolation was only reported a few weeks ago (*British Medical Journal*, March 16th, 1935, p. 520), but already three firms in this country have prepared the alkaloid on a commercial scale. A note on the first preparation appeared in this column on May 4th (p. 929). Ergometrine promises to be of considerable therapeutic importance, because it produces a powerful and rapid oxytocic action when given by mouth. The preparation issued by British Drug Houses Ltd. is in tablets of 0.5 mg. for oral administration. The preparation issued by Allen and Hanburys Ltd. is a sterilized solution in double-ended ampoules (0.25 mg.), for use by injection or by the mouth.

AN IMPROVED BALL-BEARING CASTOR

A variety of castors—the "Autoset"—constructed for use in hospitals and in medical equipment generally, have been designed to eliminate many of the troubles which beset the castors now used in hospitals and elsewhere. Freedom in the "castor movement" has been ensured in all types by setting the wheel-fork at such an angle as to abolish "drag." The spindle of the wheel, and the rotating fitment at the head of the wheel-fork, run in grease-packed ball-bearings, which give silence and freedom in operation. Another advantage of special benefit to hospitals is that every type of "Autoset" castor is so constructed that it will not pick up fluff, hair, and threads, which "bind" the wheel-spindle. In certain of the larger types a "shock-absorber" is fitted, to neutralize any jars or vibrations caused by uneven floors or rough handling. Particulars may be obtained from John F. Atkinson, 14, New Bridge Street, E.C.4.

COMMITTEE AGAINST MALNUTRITION

MEETING AT CONWAY HALL

A largely attended public meeting was held at Conway Hall, London, on May 16th, under the auspices of the recently formed Committee against Malnutrition.

Professor V. H. MOTTRAM, who took the chair, said that several milestones had been passed since the committee held its first public meeting a year ago. One of these was the disbandment by the Ministry of Health of its Advisory Committee upon Nutrition. He was not sorry that had happened, because, although the committee was conceived with high hopes, its history had been one of frustration, culminating in a dispute with the Nutrition Committee of the British Medical Association, which latter had carried out one of the best pieces of constructive work on the subject that had been done for many years. Another milestone was the recent publication by Dr. G. E. Friend, medical officer for Christ's Hospital, of the result of an investigation carried on since 1914 on the food intake of the 800 boys at that school, correlated with health and physical development. It was found that, during the rationing period, 1917–19, there was a great setback in health and physical development—indeed, a distinct state of malnutrition. It seemed clear that one of the best ways of discovering whether malnutrition was likely to occur was to ascertain the food intake of the community or family in question. Some people seemed to think that malnutrition was a definite state ; his own view was that any nutrition which was not optimal was malnutrition.

Dr. J. NEEDHAM (Reader in Biochemistry, Cambridge) said that he had asked Dr. Leslie Harris, director of the nutrition laboratory of the Medical Research Council at Cambridge, whether there was evidence of extensive malnutrition in this country at the present time, and Dr. Harris had replied that suboptimum nutrition, from largely economic causes, was still widely prevalent in England. Statistics showed that considerable sections of the community had insufficient money to produce the bare minimum recognized by medical and scientific authorities as absolutely necessary for health. Dr. Leslie Harris added that medical science had found the remedies for various ailments due to malnutrition, and it was galling to the scientist to see those remedies unused because of the maladjustment of wealth in our civilization. The speaker mentioned various investigations in large towns showing inability to procure milk in poor households, underweight among children of the unemployed, and a failure in the diet of working-class families to reach the minimum requirements, not only in respect of vitamins, but of protein, calcium phosphate, and iron.

Miss ELEANOR RATHBONE, M.P., after praising the working-class housewife, urged political action with a view to higher allowances for dependants under statutory unemployment benefits ; an adequate scale of unemployment pay for those who had fallen out of benefit ; an extension of the cheap milk system to all children, pre-school and other, and to nursing mothers ; the institution of free or cheap school meals for all elementary school children and for secondary school children, with a means test ; and the extension of the system of rent rebates for corporation houses in proportion to the number of children and the income of tenants.

Dr. JANET M. VAUGHAN spoke of the wide extent of ailments arising from lack of the right kind of food, and said that a large proportion of the population had no fresh milk at all. In a recent survey in Aberdeen, covering more than a thousand families, 50 per cent. of the women were found to be suffering from a poorness of blood entirely due to lack of adequate substances in the food.

Professor J. R. MARRACK referred to a recent increase in tuberculosis in the depressed areas, significant because of the known connexion between tuberculosis, especially in young children, and inadequate feeding. He deprecated the profusion of discussions by the authorities on the assessment of malnutrition in the attempt to blame other things for its occurrence than the sheer inability of the people to buy what was absolutely necessary for their health. What was the use of talking about a balanced diet when people had not enough money to buy its more expensive constituents?

Mr. A. L. BACHARACH referred to a statement by Sir John Orr in a Chadwick Lecture in 1934 that there were in this country ten million people who could not afford to buy food on the scale laid down by the Nutrition Committee of the British Medical Association. That was before retail prices had been raised artificially quite so high as at present by tariffs and subsidies. He believed Sir John Orr had understated the case, and that at the present time, partly because of this increase in retail prices, there were perhaps twenty million people who could not afford food on the scale necessary for normal nutrition. At a recent meeting of the Royal Society of Medicine Dr. Spence had stated that in his opinion the time had come for a revision of the general idea of what constituted normal health and nutrition, and that there was every reason to believe that the present conception was far too low.

RESOLUTION ADOPTED

Mr. BACHARACH moved, and Dr. J. NEIL LEITCH seconded, a resolution (which was carried unanimously) placing on record profound misgiving at the degree of malnutrition both in extent and intensity now proved beyond any doubt to exist in this country, in the British Empire, and throughout the world. The resolution continued:

"It [this meeting] realizes that the present state of agricultural and medical knowledge makes the elimination of malnutrition and hence of a high proportion of the world's ill-health and disease a problem of social and economic organization only. It wishes further to record its belief that all interests acting so as to prevent the application to the benefit of mankind of the established advances in science and technology are not merely anti-social but actively endangering the continued existence of so-called civilized society. It therefore pledges itself to work unremittingly for whatever reforms or more drastic changes may prove necessary to secure that the results of science, paid for in the long run with the money of the people, shall be so used that those who pay for them and their descendants may benefit from what they pay for."

In some further discussion Dr. E. H. T. NASH mentioned that an influential committee had been formed by the People's League of Health to deal with the question of nutrition of expectant and nursing mothers as affecting maternal mortality and morbidity.

F. Tobiesen, K. A. Jensen, and H. C. A. Lassen (*Ugeskrift for Laeger*, March 7th, 1935) consider as mythical the generally accepted teaching that the pulmonary tuberculosis of human beings is almost invariably due to the human type of tubercle bacillus ; for the Danish State Serum Institute has, in the last two and a half years, succeeded in demonstrating the bovine type in twenty-six cases of pulmonary tuberculosis tended in the hospitals of Copenhagen. There were also thirty-nine cases in which the bovine type was found in parts of the body other than the lungs. These impressive figures reflect, in the authors' opinions, the vast improvement which has recently been effected in the technique of the laboratory differentiation between the various types. A significant feature of their twenty-six cases of pulmonary tuberculosis was the invariable absence of any other family or neighbouring case of human pulmonary tuberculosis, contact with which might have been responsible for these cases. There was, indeed, one case of open pulmonary tuberculosis in the home of one of the twenty-six, but the tubercle bacilli found in this case were of the human type. This lack of contacts with other human cases was in glaring discrepancy with the association of one case with another where pulmonary tuberculosis due to the human type is concerned.

British Medical Journal

SATURDAY, MAY 25th, 1935

THE MEDICAL CURRICULUM REPORT

Last week we published an abridged version of the report of the Conference on the Medical Curriculum held on the initiative of the University of London and composed of teachers representative of that university, the Universities of Oxford and Cambridge, the two English Royal Colleges, and the Society of Apothecaries. This Conference was set up in December, 1932. At almost the same time the Council of the British Medical Association appointed a Special Committee to consider the subject of medical education, which contained representatives not only of teachers, but of general practitioners and those carrying on practice in several special branches of medicine. The report of that committee was published in April last year, and was subsequently accepted by the Representative Body of the Association and reprinted as an Association pamphlet. These two reports together constitute such an authoritative pronouncement on the course of study that should be pursued prior to entry upon medical practice, and on the examination tests that should be applied before, during, and after completion of that course, that they must carry the greatest weight with the General Medical Council, with universities, and with all teaching, examining, and licensing bodies, and must influence, if not determine, the decisions on these matters which will be arrived at in the imminent future. Together with Dr. Etienne Burnet's report on "Medical Education and the Reform of Medical Studies" to the Health Organization of the League of Nations (October, 1933), and the final report of the American Commission on Medical Education (1932), they form the most important survey of the whole field that has ever been undertaken.

It is a matter for great satisfaction that the findings of all these bodies have so much in common. The close resemblance of the main points in the League of Nations report to those in the British Medical Association's report was noted in our columns ; and it may now be seen, as perhaps might have been expected, that the correspondence between the present report of the Conference and that of the Association is even closer. The influence of the latter on the former is very plain: with one exception the suggestions and recommendations of the two reports may be described as roughly identical. There are small differences in nomenclature and classification of subjects of study. There are matters of detail which are mentioned or amplified in varying degree, some in one report, some in the other. So too there are felicities of phrasing peculiar to each. But, broadly, each report recognizes the merits of the British system of medical training which distinguish that system from others ; they point out the same defects as requiring correction, and suggest remedies for these defects of an essentially similar kind. The Association's report aims at such "a co-ordinated course of study as will by its mental discipline make the student a really educated person and not merely a skilled technician." The Conference believes that "by developing at all points fields of association, his mind may acquire that kind of culture which survives the forgetting of facts."

To these ends certain things are essential. The commencement of the medical curriculum proper should be held to begin with the systematic teaching of human anatomy and physiology, and before that time the student should be shown to have received a somewhat higher degree of general education than the present minimum and to possess a sufficient knowledge of the pre-medical sciences, biology as well as physics and chemistry, including the elements of organic chemistry. This involves a slight postponement, in some cases, of the age at which strictly medical education may begin. The Conference recommends definitely that this should not be before the age of 18. Further, "subjects" must not be treated in separate compartments, but must be dovetailed into a connected "course." This means freeing some of the pre-clinical subjects from some of their detail, especially for examination purposes, and making them more alive by illustration and comparison with living material and with pathological defect. The institution of an introductory psychological course is regarded as essential, and an excellent syllabus for this is suggested. The need for attention to the psychological and the preventive aspects of medicine throughout the course is emphasized. The relation of the special departments to the general course is dealt with by both reports, but that of the Conference does not mention so prominently the subject of physical methods of treatment as does that of the Association, and perhaps the important matters of genetics and growth receive insufficient notice.

There is no need here to describe further the suggestions, whether as to curriculum or examinations, on which there is a general and happy agreement. No doubt all those interested will study them carefully in both reports now that they can be compared. The slight differences in presentation and emphasis will be found most interesting and instructive. The one main difference, however—though even this, at bottom, is more apparent than real—deserves attention. It relates to the final examination and to the last few months of study. The reports agree that the course of fifty-seven months should not be lengthened. That of the Association suggested that Part I of the final examination, written and oral in the main clinical subjects, might be taken after forty-eight or fifty-one months of study, that the last six or nine months of the course should comprise alternative methods of acquiring responsible practical experience under supervision, and that Part II of the final examination should be oral and clinical only, and relate to the studies undertaken during this last period. Difficulties arising from this suggestion were pointed out, but were held not to be insuperable. The report of the Conference contemplates no such

period within the five years' course and would make Part I of the examination deal with medicine, surgery, and pathology, and Part II with obstetrics and gynaecology, paediatrics, and public health (including forensic medicine), both parts, of course, being written and oral tests. Each of these suggestions has important merits and requires careful consideration. There can be no doubt that the teachers are naturally more conscious of the difficulties inherent in the Association's proposal; but the general practitioners attached great importance to it, as remedying a practical defect of which they were keenly aware. The Conference report adds that "a medical student after passing the final examination should spend at least six months as a resident medical officer in an approved hospital before commencing private practice," and looks forward to this being made a statutory obligation in the near future. Moreover, it is not open to a student to take Part I of the final examination before the full minimum course is completed, and, though he *may* take Part II at the same time, the Conference contemplates that this would usually be taken somewhat later. These requirements, it may be pointed out, really amount to a prolongation of the course of medical training.

We understand that actual proposals for the revision of the General Medical Council's resolutions in regard to professional education will be made to that Council next week by its Curriculum Committee. It is much to be hoped that that committee has been able to give adequate consideration to the report of the Conference, and that serious attention will be paid to the suggestions made by the Conference, and in the report of the B.M.A. Committee, with regard to the pre-registration course and to conditions of the final examination.

SUPERVISION OF MILK PASTEURIZING PLANTS

The desirability of protecting the community from milk-borne disease is so obvious that public health authorities, particularly in the United States, and to an increasing extent in this country, are recommending that all milk destined to be consumed in the liquid state should be submitted to pasteurization or some other adequate form of heat treatment. Numerous objections have been raised to pasteurization. Many of them, put forward often by responsible but ignorant persons, need not be taken seriously. Some, however, demand attention. The first objection is on economic grounds. It comes mainly from the small producer-retailers who, by selling milk directly in the raw and potentially dangerous state, are able to make a greater profit than they would do if they had to send it into a pasteurizing depot to be rendered safe. The answer to this objection is that there is no reason why the public health should be endangered in order that a small section of the farming community may benefit financially.

The second objection is that pasteurization is said to diminish the nutritive value of the milk. If this was really true it would be of great importance, and would have to be weighed very carefully against the known advantage conferred by pasteurization in protecting against milk-borne disease. The evidence, however, which has been summarized by Stirling and Blackwood of the Hannah Dairy Research Institute, and by the Committee on Cattle Diseases of the Economic Advisory Council, suggests that the nutritive damage to the milk caused by pasteurization is remarkably small. The energy value of the milk remains unchanged, and the only important alterations produced appear to be a slight falling off in the proportion of the soluble calcium and phosphorus salts, and a variable, but generally considerable, degree of destruction of the vitamin C. Except for infants and very young children fed almost exclusively on a milk diet, it is doubtful whether these slight changes can be regarded as of any practical importance. So far as infants are concerned, the current practice is to supplement any type of milk diet during the first year or so with orange juice and, during the winter months, with cod-liver oil. These additions are almost as necessary with raw as with pasteurized milk, since even raw milk is but a poor source of vitamins C and D.

The third objection is that pasteurization in practice is often very inefficiently performed. While admitting the truth of the accusation, it must be pointed out that this objection is based on practical and not on theoretical grounds. That is to say, it is an objection not to pasteurization itself, but to pasteurization as too commonly performed. The answer to this objection is to remove its cause. Steps should be taken to prevent faulty pasteurization, and to ensure that all milk sold as pasteurized has in fact been adequately processed. Too often at present so-called pasteurized milk has been processed in plants of imperfect design by unintelligent and unskilled operatives. What is required is a much stricter control by the local authorites over both plant design and plant operation. A very important step in this direction is the publication by the Ministry of Health of a report on the "Supervision of Milk Pasteurizing Plants."[1] Sir Weldon Dalrymple-Champneys, who has been responsible for drawing up the report, has afforded an extraordinarily lucid account of the technical processes involved in pasteurization, and a very practical set of instructions to sanitary inspectors charged with the surveillance of pasteurizing plants. Many inspectors are ignorant, almost unavoidably so, of both fundamental principles and technical details, and the present report will be of considerable help towards educating them in this direction. The adequate pasteurization of milk is of real importance, and it is hoped that local authorities throughout the country will realize the desirability of insisting in future on a far higher standard of efficiency than has hitherto been generally attained.

[1] Reports on Public Health and Medical Subjects. No. 77. Report on the Supervision of Milk Pasteurizing Plants. By Sir Weldon Dalrymple-Champneys, Bt., M.A., D.M., F.R.C.P. London: H.M. Stationery Office. 1935. (1s. 3d.)

THE ABUSE OF CODEINE

The work done by the League of Nations to suppress the traffic in drugs of addiction is generally agreed to be an outstanding example of valuable international co-operation. The work is peculiarly difficult, however, because the problems change in a kaleidoscopic fashion. Thus, a few years ago the chief problem was the protection of China against the alkaloids produced in the factories of the West, whilst to-day China has got her own factories, and there is now the problem of protecting the West against this new source of supply. Not only do the channels of the trade continuously shift, but new drugs are constantly being produced. The course of events is nearly always the same. The indefatigable ingenuity of the organic chemist produces a new variant of the morphine molecule, and the manufacturer with his inexhaustible optimism announces to the world that a drug has been discovered with all the valuable qualities of morphine and none of its defects, and in particular that the newcomer will never produce habit. In due course the habit-forming qualities of the drug are discovered and estimated, and, as often as not, they are found to be even more intense than those of morphine, whilst in the interval, before control has been fully established, the dope merchants of the world rejoice in an uncontrolled morphine substitute. The League of Nations has, however, grown wise to this dodge, and the present regulations arrange for the control of any new morphine derivative that is at all likely to produce addiction. There remains a very large and legitimate demand for sedative cough mixtures, and the retail sale of codeine has been exempted from control so as not to interfere unnecessarily with the work of chemists and doctors. This decision was based on what seemed to be conclusive evidence. Codeine had been used in therapeutics for a hundred years, and there was no reliable evidence that it could produce addiction. It was reasonable to believe that after such a period of trial there was nothing new to learn about the properties of the drug. The results of this step were remarkable, since, after a year or two, it was found that half the morphine isolated from opium was being converted into codeine. There was, however, a legitimate reason for this, because the freedom of codeine from retail control made it the drug of choice for all sedative cough tablets sold otherwise than under a doctor's prescription. The magnitude of the sale of codeine nevertheless caused some concern, because it was obvious that if any mistake had been made in estimating the addiction potentialities of codeine, then a very large hole would have been left in the net of drug control. Reports from Canada[1] now show that the perverted ingenuity of the drug addict has been underestimated. Codeine has a relatively feeble euphoric action, so feeble indeed that the addict can get little satisfaction from the drug taken by mouth. Large doses of codeine taken hypodermically or intravenously can, however, act as a morphine substitute for the addict. Tests on addicts have shown that the relative potency of morphine and codeine is about five to one. The doses of codeine taken are very large, and one case is reported in which 80 grains of codeine were injected hypodermically every day. At present there are only a few records of genuine codeine addicts—that is to say, persons who always have used codeine as distinct from those who have taken to codeine as a substitute for morphine or heroin. But it is not safe to assume that this will continue to be the case, because drug habits spread chiefly by imitation of the habits of others, and there is no guarantee that a codeine habit may not become established once the technique gets generally known. Very fortunately the League of Nations has maintained control of the wholesale trade.

[1] "The Use and Abuse of Codeine in Canada," *Canadian Med. Assoc. Journ.*, April, 1935, p. 424.

AGRANULOCYTOSIS

We recently reviewed[1] the present state of knowledge of this new or lately recognized disease, with particular reference to its aetiology. It is now the subject of a Ministry of Health Report[2] compiled by Dr. E. W. Adams, who concisely marshals the facts to be found in the already extensive literature of this disease. As a full record of what is known and a fair statement of what is believed this report will be of considerable value, especially since by far the greater part of the published clinical reports is in the literature of other countries; from now on it should be unnecessary for any writer on this subject to append a bibliography of his own. It is perhaps inevitable in an official report that conclusions should be cautious, and evidently the value of pentose nucleotide in treatment and the possible effect in producing the disease of sedative drugs other than amidopyrine itself are still in such doubt as to preclude any other sort of judgement. But amidopyrine has been so clearly incriminated that a pronouncement from the Ministry of Health might have been expected to recommend means by which its danger can be met. It is really idle to suggest that patients taking this drug for any length of time should have periodical blood counts, if only for the reason (a fact not overlooked in this report) that many of them are taking it unknown to themselves or their doctors. A list of twenty-one proprietary preparations containing amidopyrine is given in the report; it "does not purport to be exhaustive," and indeed is not, since it omits four which were named in this *Journal*. One preparation in this list is a patent medicine which, according to its advertisements, contains yeast, vitamins, and "other valuable elements prescribed by leading specialists." This "tonic" evidently produces a sensation of well-being because it contains—besides yeast—amidopyrine, phenacetin, and bromides, and its more persevering consumers are in danger of developing agranulocytosis, possibly with fatal results; at least one severe case due to its consumption has been published. Without entering into the wider question of how the unexampled liberty accorded to patent medicine vendors in this country should be curtailed, it may reasonably be urged that this is a case in which immediate action should be taken, as it easily could be, since the matter is not one involving fresh legislation. It is only necessary that amidopyrine should be scheduled by the

[1] *British Medical Journal*, March 2nd, 1935, p. 425.

[2] A Review of Certain Aspects of a Recently Recognized Disease of the Blood (Agranulocytosis or Agranulocytic Angina). By E. W. Adams, O.B.E., M.D. Report No. 76. H.M. Stationery Office. 1935. (6d.)

Poisons Board, and then at least its use will be brought under control. The medical profession, now becoming better acquainted with agranulocytosis, will then be in a position to decide whether the risks of giving this drug are or are not counterbalanced by any advantages it may possess over other antipyretics and analgesics. It is quite conceivable that minor degrees of interference with marrow function may be more common than is now known, and may follow shorter periods of administration, with a distinctly unfavourable effect on the course of infective conditions yet without the characteristic and catastrophic features of agranulocytic angina. Such considerations, or even the remote risk already recognized, may lead eventually to the complete abandonment of this drug, but in the meanwhile there is everything to be said for prohibiting its sale to the public.

BOILED CABBAGE

Three hundred years ago, in his *Garden of Health*, containing the virtues and properties of all kinds of simples, William Langham wrote of boiled cabbage that it was "very good with beef." To modern people the cabbage is probably the least interesting of all culinary vegetables, and there is an idea that when boiled it has lost all its vitamins, or, to use an older word, its "goodness." An interesting short communication was made at the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine, which was held in the laboratories of the Pharmaceutical Society on May 14th, on the subject of vitamin A in cooked vegetables. Miss Katharine Coward, D.Sc., said that her purpose had been to discover whether boiled cabbage had the useful properties for nutrition which were sometimes claimed for it. One experiment which was on record showed that after boiling for twenty minutes—the period for which cabbage is generally boiled—the resulting loss in vitamin C was something like 80 per cent., and this and other work had made it clear that vitamin C in foodstuffs could not resist the ordinary temperatures of cooking. This worker's particular attention, however, had been drawn to vitamin A. She had taken a number of rats which were given a vitamin A free diet until they stopped growing. When that occurred they were divided into three groups, one of which was given a certain amount of fresh cabbage every day, another the same amount of boiled cabbage, while the third was given cod-liver oil of a well-determined potency, the rest of the diet in all cases remaining vitamin A free as before. After three weeks the increase in weight of the animals was determined and averaged for each group, the animals which had received cod-liver oil serving as the control. There was found to be no difference between the fresh cabbage and the boiled cabbage; in both cases, as expressed in international units, the result worked out at 9 units per gram. Again, with carrots the response was the same for the fresh and the boiled vegetable, working out at 18 units, while in the case of runner beans, actually the boiled legume had a higher value than the fresh, though Dr. Coward thought that this must be due to some experimental error. According to the table which she produced the vitamin A value of cabbage and carrots, whether fresh or boiled, is greater than that of dairy milk or Jersey milk. It is much less than that of butter, of course, but in assessing the value of these foods regard must be paid to the amount it is possible to consume at a meal, and as much more boiled cabbage than butter can be eaten, the value of the former is proportionately enhanced. The same applies with even more force to cod-liver oil, a highly concentrated source of vitamin A, but not one that can ordinarily be consumed as freely or as pleasantly as the homely vegetable.

GRAVESEN ON PULMONARY TUBERCULOSIS

At the annual provincial meeting of the Tuberculosis Association held recently at Oxford, Dr. J. Gravesen reviewed the methods of treatment at Vejlefjord Sanatorium in Denmark since 1907. Gravesen succeeded Saugmann as medical superintendent of this well-known institution in 1922, and his almost unique position, that of an "operating" tuberculosis physician, enhances the interest of his findings and conclusions. The material is somewhat "selected," for the sanatorium caters chiefly for private patients; this fact, however, probably accounts for the achievement of a 100 per cent. follow-up. Gravesen first pointed out the erroneous views which exist in regard to the theoretical basis of surgical methods in the treatment of pulmonary tuberculosis. The beneficial effect is not due to compression, which is injurious to tuberculous tissue, nor to immobilization, as considerable respiratory movement still occurs in the lung treated with an artificial pneumothorax. No significance, moreover, could be attached to associated vascular changes. The aim of surgical treatment, he stated, is "to create better conditions for the spontaneous retractive power," and he suggested "relaxation therapy" as more accurate nomenclature. Cavity formation, being a step in the demarcation of the tuberculous process, indicates the moment for surgical treatment; hence we should really speak of "cavity therapy." Interventions like thoracoplasty, which make considerable demands on the resistance of the patient, should, in contrast to artificial pneumothorax, only be carried out when signs of definite fibrosis are present and when the "immuno-biological reaction" (that is, the sedimentation rate and blood picture) is favourable. Gravesen then proceeded to show how the surgical treatment of pulmonary tuberculosis is being revolutionized by the introduction of the "selective" principle, the aim of which is to obtain relaxation of the diseased region alone. In artificial pneumothorax this is often achieved by cauterizing adhesions. In thoracoplasty the principle has led to the evolvement of a smaller partial operation—thus increasing the number of operable patients and reducing the operation risk. He suggested "cupuloplasty" as a suitable name for this type of operation, which, however, is not always effective, because the apex of the lung is held up by ligaments stretching from the parietal pleura to the front of the cervical and upper dorsal vertebrae. Hence an apicolysis may have to be added; and this is now being done extra-fascially in Norway, although Gravesen himself finds the extra-pleural method satisfactory. Apicolysis with plugging he reserves for those

in whom age, special complications, or the refusal of the patient render thoracoplasty impracticable. Interruption of the phrenic nerve Gravesen condemned as an operation from which he rarely saw benefit, except in small basal cavities. His statistics are of great practical importance, and are based on 909 patients who had been subjected to operation or to artificial pneumothorax from 1907 to 1932, sputum-negative patients and those whose outlook was already hopeless being excluded. Before the introduction of adhesion cauterization 21.6 per cent. of patients treated by artificial pneumothorax, in whom it remained contra-selective or ineffective, were fit for work five years after discharge from the sanatorium: the latter operation and thoracoplasty have raised this percentage to 50.8. A total of 319 thoracoplasties show a mortality at six weeks of 12 per cent. in the first hundred and of 8 per cent. in the last hundred; and, moreover, the introduction of the partial operation has resulted in a much smaller mortality after two, four, and six years —11, 21, and 22 per cent. respectively for the total and subtotal, and 4, 7, and 7 per cent. for the partial operation. Gravesen estimated that the last hundred patients in the total series will show a 74 per cent. return to work after five years as compared with 37 per cent. in the first hundred. In contrast he recalled the published mortality figures of cavernous cases (of which a small number only had been treated by surgical methods, including artificial pneumothorax)—70 per cent. dead (Germany) after four years, and 90 per cent. (America) after five years. Inevitably points arise in Gravesen's communication which require amplification. "Relaxation" substitutes one term for another and does not entirely explain the dynamics in the chest, nor account for the rapid constitutional improvement seen in some cases of artificial pneumothorax; moreover, the part played by atelectasis, massive or partial, in collapse therapy can no longer be ignored. Gravesen's conception of cavity formation does not perhaps include the familiar "acute" type. And lastly, the condemnation of phrenic interruption did not appear to be based on a distinction between the permanent and temporary operation or between the immediate and remote results. Nevertheless, in spite of some obvious empiricism in the surgical treatment of pulmonary tuberculosis, Gravesen's paper illustrates what can be achieved for the patient with chronic tuberculosis by a logical mind making judicious use of the methods available.

RECURRENT MENSTRUAL PURPURA

Drs. Philip Ellman and F. Parkes Weber[1] describe the case of an otherwise apparently normal woman, aged 58, who ever since the age of 47 has been subject to recurrent purpura limited to her lower extremities. Her menopause was between 52 and 53 years of age. Until the menstruation ceased her purpuric attacks might have been regarded as "supplementary menstruation," afterwards as "vicarious menstruation." Before the menopause the purpura appeared in small spots only, but after the menopause the attacks became worse, recurring at first every month, but later on every two months. Together with the purpuric spots (macules) there were then large ecchymotic patches on the portions of the extremities below the knees, and sometimes swelling of these parts accompanied the attacks. The attacks usually last about a week before the purpura begins to fade. The fading takes place suddenly, and in about two weeks as a rule all traces of the purpura have disappeared. Mental shock can apparently make the attacks worse. The type of purpura most resembles the mixture of erythema and purpura (purpuric erythema) known as the Schönlein-Henoch or "anaphylactoid" type, for which an allergic or anaphylactic causation is probable. Examination of the patient's blood has shown nothing special excepting a slight diminution of thrombocytes. Treatment by calcium gluconate (intramuscular injections of 5 c.cm. of a 10 per cent. solution) and glandubolin-Richter (intramuscular injections of 1 c.cm.) has undoubtedly done good. The authors have briefly reviewed the literature and theories relating to purpuric and other eruptions occurring in connexion with menstruation and pregnancy.

[1] *Brit. Journ. Derm. and Syph.*, May, 1935, xlvii, 197.

COMPENSATION FOR WEIL'S DISEASE

Under the Workmen's Compensation Acts a workman can claim compensation for personal injury by accident arising out of and in the course of his employment. If a workman dies, his widow can be awarded £300, with £100 extra for each dependant child. The legal interpretation of "accident" has gone far beyond the ordinary man's idea of what constitutes an accident. It has been settled for many years that infection with bacilli in the course of employment is an accident. In Brintons *v.* Turvey (1905) the House of Lords awarded compensation to a wool-sorter who was infected by anthrax. In Walker *v.* Mullins (1908) a gardener was given compensation for tetanus, and workmen have also succeeded in claims for compensation on the ground of infection by ringworm from cattle and, only two months ago, typhoid contracted from infected food served to the crew in a steamship. The latest disease to be added to the category of "accidents" is Weil's disease, the organism of which is *Leptospira icterohaemorrhagiae*. The widow of a sewer-worker who died recently of it was awarded £600 compensation on behalf of herself and three young children in an arbitration heard by Judge Dumas at the Westminster County Court on May 17th. The employers suggested in defence the possibility that the jaundice from which the workman died after ten days' illness had been due to tonsillitis, but Dr. C. M. Wenyon said that Weil's disease might produce sore throat in its early stages, and Dr. Hamilton Fairley gave evidence that a sewer-worker was liable to be infected from an abrasion or by the membrane of the nose or mouth, and that 10 to 30 per cent. of the rats in London, mainly in the sewers, had been found to carry *L. icterohaemorrhagiae*. The disease is not often encountered in human beings in England, though it is common enough in Holland, probably because of the great extent in that country of polluted canals infested with rats. Dr. Fairley, describing the present case in the *Journal* last July,[1] said that during the past few years there had been a regular series of infections

[1] *British Medical Journal*, 1934, ii, 10.

among sewer-workers, especially among those whose duty it was to repair the brickwork and who were consequently liable to injury of the hands. In a leading article in the same issue[2] we mentioned that cases have also been found among flushers. The disease probably enters the human body from the slime covering the bricks above water-level, as this is constantly contaminated with the urine of infected rats. We also suggested that it would be interesting to discover whether the cases observed in sewers presented a limited outbreak or whether they had occurred unrecognized ever since sewers were first constructed. Now that the disease has appeared as a menace to employers, research will probably receive a stimulus. Preventive efforts may possibly be directed towards the cleansing and disinfection of brick surfaces before breaking-up work is done ; the protection of workers' hands from exposure, especially when the skin is broken ; and the elaboration of a vaccine.

NOISE ABATEMENT EXHIBITION

The Prime Minister will open, on May 31st, at the Science Museum, South Kensington, a noise abatement exhibition which is being arranged through the Anti-Noise League under the chairmanship of Lord Horder. The exhibition will remain open throughout June, and will probably conclude with special meetings and conferences during the last week. It is proposed that the exhibition shall present a comprehensive survey of the whole problem of noise in its many aspects. The practical co-operation of a number of institutions and public bodies has already been obtained, including the Ministry of Health, the Air Ministry, the National Physical Laboratory, the Post Office Research Laboratories, the British Broadcasting Corporation, the Industrial Health Research Board, and a number of industrial research laboratories and firms. Dr. G. W. C. Kaye of the National Physical Laboratory is chairman of the research and development section of the exhibition, Professor Cave-Browne-Cave of the transport and machinery section, Mr. Hope Bagenal of the building section, and Sir Henry Richards of the organizing committee. The Science Museum has placed generous accommodation at the disposal of the Anti-Noise League, and it is hoped to display many interesting exhibits of noise abatement appliances. A small demonstration house is to be erected which will incorporate the latest architectural and building designs and materials for sound-proofing and sound absorption. There will be a number of demonstrations, including silenced pneumatic drills, motor-cycles, typewriters, vacuum cleaners, electric motors, circular saws, and so on. The latest devices for the measurement, analysis, and filtering of noise will receive attention, and experiments on the value of ear defenders, the masking of noises, the effect of noise on loudness of speaking, and the use of noise-level alarms will claim the interest of most people. The effect of noise on output in industry will be illustrated by the results of recent investigations. Further information may be had from the General Secretary, the Anti-Noise League, 66, Victoria Street, S.W.1.

[2] *British Medical Journal*, 1934, ii, 27.

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

One session of the meetings held in Melbourne from March 4th to 8th, in connexion with the opening of the new building of the Royal Australasian College of Surgeons,[1] was devoted to the subject of post-graduate training. Sir Holburt Waring, President of the Royal College of Surgeons of England, outlined the scheme which is being developed in London and emphasized the importance of a special hospital with a special staff for post-graduate study. It was announced at the meeting that Prince Henry's Hospital, after certain necessary additions had been effected, would be used as a centre of post-graduate study in Melbourne. One of the week's ceremonies that deserves mention was the presentation of the Jacksonian Prize for 1933 to Mr. E. S. J. King by Sir Holburt Waring. In the last twelve years this prize has been won three times by Australians, Mr. King having won it also in 1930, a feat that has seldom been equalled since the prize was instituted in 1800. At the annual meeting of the College on March 8th, Mr. R. B. Wade was elected President in succession to Sir Henry Newlands. Mr. Wade has been lecturer in clinical surgery and in children's diseases at Sydney University since 1925, and in 1932 was appointed president of a medical board of New South Wales.

LISTER MEDAL

The Lister Medal for 1936, which is given in recognition of distinguished contributions to surgical science, has been awarded to Sir Robert Muir, M.D., F.R.S., professor of pathology in the University of Glasgow, who will deliver the Lister Memorial Lecture at the Royal College of Surgeons of England in 1936. This is the fifth occasion of the award, which is made by a committee representative of the Royal Society, the Royal College of Surgeons of England, the Royal College of Surgeons in Ireland, the University of Edinburgh, and the University of Glasgow. It is interesting to note that it is now exactly seventy-five years since Lister became professor of surgery in the University of Glasgow.

A special meeting of Fellows of the Royal Society of Medicine was held on Tuesday last, May 21st, Dr. Robert Hutchison presiding, for the purpose of making elections to the Honorary Fellowship. Five new Honorary Fellows were elected, in each case unanimously—namely, Sir StClair Thomson (who was president of the Society in 1924-5), and the following distinguished foreign professors: Sigmund Freud, of Vienna ; Joseph Jadassohn, of Zurich ; G. R. Minot, of Harvard ; and R. F. J. Pfeiffer, of Breslau.

The Executive Committee of the Imperial Cancer Research Fund announces that William Ewart Gye, M.D.Ed., of the National Institute for Medical Research, Hampstead, will succeed Dr. J. A. Murray, F.R.S., as director of the Fund on the latter's retirement at the end of this year. Dr. Gye, whose publications on cancer are well known, was formerly a member of the staff of the Fund.

[1] See *British Medical Journal*, May 4th, 1935, p. 930.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

CHRONIC VALVULAR DISEASE OF THE HEART

BY

ARNOLD W. STOTT, F.R.C.P.

Chronic valvular disease—the commonest form of chronic heart disease—does not entail such a gloomy outlook as was once thought. Intelligent medical supervision of the patient will undoubtedly increase the expectation of useful and comfortable life in many cases, and perhaps postpone the onset of the complications—especially congestive heart failure—to which most sufferers in the end succumb. Before discussing the management of these cases, we will inquire for a moment into the diagnosis of the condition, its significance, and prognosis.

General Considerations

The diagnosis of chronic valvular disease of the heart is arrived at by the discovery of certain murmurs accompanying or replacing the normal heart sounds. It is well known, however, that murmurs vary in their significance, and for practical purposes it can be said that, with few exceptions, murmurs appearing during cardiac systole have little significance as compared with those falling in diastole. The diagnosis of mitral regurgitation following the discovery of a systolic apical murmur is still, unfortunately, far too frequent. As an organic affection of the mitral valve mitral regurgitation is exceedingly rare unless it is associated with the more easily diagnosed and more important mitral stenosis ; while as a temporary or functional condition it is overshadowed in importance by the underlying myocardial affection which led to dilatation of the mitral ring. The diagnosis of acquired chronic valvular disease of the heart should not be made from the presence of a systolic murmur alone.

For our present purpose, then, chronic valvular disease comprises mitral stenosis, aortic regurgitation, a combination of these, and the less frequent aortic stenosis. Mitral stenosis is due, with rare exceptions, to a previous rheumatic endocarditis, although a history of rheumatic infection in its various forms is frequently lacking. Disease of the aortic valve leading to regurgitation may similarly be due to a previous rheumatic endocarditis or to a syphilitic aortitis spreading downwards to the valve cusps ; or, again, it may result in later life from atheromatous changes in the valve, often associated with the deposition of lime salts. The less frequent aortic stenosis occurs in rheumatic and arteriosclerotic cases, but is rare in syphilis, in which the lesion is essentially destructive.

We can to some extent gauge the degree of a valve lesion. If the presystolic or diastolic murmur of mitral stenosis is heard only at times, or has to be forced out by exercise and by raising the heart rate, then the stenosis is early ; if the murmur is constant and tends to fill the whole of diastole, the stenosis is developed. If in aortic regurgitation there is no alteration in the character of the pulse, the regurgitation is slight ; if the water-hammer pulse is present the regurgitation is free. Aortic stenosis should not be diagnosed in the absence of a slow rising pulse.

Factors in Prognosis

Although the presence of developed mitral stenosis or free aortic regurgitation must impose an extra burden on the heart, it has long been known that the healthy cardiac muscle possesses an enormous reserve power. The clinical significance of valvular disease lies much more in the fact that when the valve becomes diseased the myocardium frequently suffers material damage at the same time and from the same cause, be it rheumatic, syphilitic, or degenerative. The chief clinical sign of this damage is enlargement of the heart, which was long thought to be a response to increased work and of beneficent design. It is a remarkable fact that, although valvular disease of the heart has been recognized as a serious condition for over a hundred years, we are still lamentably ignorant concerning the natural history of the disease.

Recently, however, Grant has laid a solid foundation for more accurate prognosis in his paper on the after-histories for ten years of a thousand men suffering from heart disease. He shows that the best guides we possess for prognosis in chronic valvular disease are not the characters of the murmurs or the type of valvular defect, but the degree of cardiac enlargement and the grade of heart failure as estimated by the patient's response to effort and by the presence of venous congestion. Prognosis is good, he finds, in cases with little or no enlargement, and when the exercise tolerance is good or fair. Only about 20 per cent. of such patients will die during ten years. Almost half of them survive that period uneventfully and with physical signs unchanged. The prognosis is poor in patients with moderate enlargement and poor exercise tolerance, for 50 per cent. die within ten years. The prognosis is bad in patients with great enlargement or evidence of congestion. Few of these will survive ten years, and the average duration of life in the presence of venous congestion is only two and a half years.

Prognosis is modified by (*a*) the development of subacute bacterial endocarditis—the average duration of life in its presence is six months, and it appears most commonly in cases of non-syphilitic aortic regurgitation—and (*b*) the onset of auricular fibrillation, which influences unfavourably the general prognosis. The latter occurs more frequently in developed mitral stenosis than in early stenosis. Prognosis is less favourable in aortic stenosis and in syphilitic aortic regurgitation. With these exceptions, the type of valve defect does not appreciably affect the outlook, for there is no material difference in the death rates in mitral stenosis, in non-syphilitic aortic regurgitation, or with these lesions combined. One of Grant's most important conclusions is that " the general outlook for cases of valve defect is not so bad as is generally thought, even for syphilitic regurgitation. The average life in cases with aneurysm is over five years, and in its absence only 58 per cent. of those with syphilitic aortic disease die within ten years." Another striking fact which emerges is the large proportion of cases of chronic valvular disease of the heart which are summarized as " uneventful and unchanged." Even in the majority of those patients who die there is no steady progression downwards ; the original condition of valve lesion, heart size, and exercise tolerance remains unchanged until death supervenes suddenly or within a year or two of the onset of congestive heart failure.

The following table gives at a glance some of the chief figures from Grant's paper.

	Mitral Stenosis (Rheumatic)	Non-syphilitic Aortic Regurgitation (Rheumatic and Indefinite)	Syphilitic Aortic Regurgitation
1. Number of uncomplicated cases	197	129	136
2. Live ten years with no alteration in signs	35%	34	18
3. Develop auricular fibrillation	20%	2	4
4. Develop subacute bacterial endocarditis	3%	10	4
5. Develop congestive heart failure	25%	10	22
6. Died	36%	42	60
7. Chief causes of death:			
(*a*) Sudden death	Very rare	14%	33%
(*b*) Congestive heart failure	54%	19%	36%
(*c*) Subacute bacterial endocarditis	3%	38%	0
(*d*) Pulmonary affections ...	10%	—	6%

The medical man should therefore take a long view when confronted with a case of chronic valvular disease of the heart. He should gauge the severity of the case by assessing the degree of valve defect, the amount of cardiac enlargement, and the degree of encroachment on the heart's reserves by the amount of exercise tolerance and the presence of venous congestion. In this manner he will obtain some idea as to the outlook and the extent to which it will be necessary to interfere with the patient's mode of life.

Therapeutic Principles

Treatment consists not in the use of drugs—for the days when the discovery of a murmur led to the automatic prescription of digitalis are long past—but in the institution of a suitable mode of life, one calculated to ward off for as long as possible the dangers which beset the patient. This simple and obvious conception is, however, often difficult of accomplishment. The patient's mind and spirit have to be considered as well as his body, and, while suitably protecting the patient, the practitioner must avoid over-fussiness and the danger of bringing about a state of chronic invalidism. Common sense is of more value than a knowledge of drugs. We cannot repair an already damaged myocardium; our efforts should be directed towards preventing further damage. For, as we have seen, it is not the valve lesion which is responsible for the final breakdown, but weakening of the heart muscle. Unfortunately we are ignorant to a large extent of the factors which produce the state of the myocardium which leads to congestive heart failure and to auricular fibrillation, though there is evidence that infection often plays an important part in the former.

With regard to the management of cases of chronic valvular disease we can use the three prognostic groups already given, and say that (*a*) in cases with no cardiac enlargement and a good exercise tolerance it will only be necessary to forbid the more strenuous forms of work and exercise; (*b*) with moderate enlargement and fair to poor exercise tolerance varying degrees of restriction will be necessary; and (*c*) with great enlargement and signs of venous congestion the patient will require treatment as for congestive failure.

In every case careful and detailed inquiry should be made into the routine of the patient's life, and instruction should be given on the following points.

1. *Exercise.*—Some form of outdoor exercise is of great benefit for all patients with chronic valvular disease who are fit to walk about. The form and amount of exertion permissible is determined on the principle, which should be clearly explained to the patient, that it should not induce symptoms, such as dyspnoea, during the exercise, or undue fatigue afterwards; in other words, the patient should keep well within his capacity for effort. Even when there is some quickening in the breathing, exercise is allowable so long as actual distress is avoided and the dyspnoea quickly disappears on resting. Most patients quickly learn their limits and get used to a suitable routine life.

2. *Occupation.*—Suitability of work is decided upon the same principle, but the patient should not be advised to leave or change his occupation unless there are clear reasons for doing so, for unemployment will add many fresh anxieties. Heavy manual work is rarely possible, but lighter occupations can often be carried out without harm, though a large proportion of the patients will be forced to take only sedentary occupations. Children should be kept at school wherever possible, though under strict supervision with regard to games.

3. *Sudden Strains.*—In every case the patient should be warned against sudden strain of all forms, such as running to catch a bus or train, or lifting heavy weights.

4. *Diet.*—Moderation in eating should be enjoined. There is no need for special dieting in the slight cases. When the patient is confined to bed from any cause small dry meals, with a relatively low carbohydrate content to avoid flatulence, are indicated. Meals should be taken at regular intervals, should consist solely of easily digested food, and only in such quantities as are required to maintain a correct weight. Obesity adds its burden to the heart, and its removal (by a gradual reduction in the carbohydrate and fat content of the dietary) forms an important indication for treatment.

5. *Infections.*—Avoidance of respiratory and other infections by taking such obvious precautions as shunning crowded rooms or meetings, especially at times when infection is likely (in the winter months and at times of epidemics); by avoiding fatigue, hunger, and unnecessary exposure to cold and damp; by careful attention to cleanliness of the skin and mouth. In some patients prophylactic inoculations with stock anti-catarrh vaccine seem to protect against upper respiratory tract infections.

6. *Tonsillectomy.*—This is advisable in young subjects with rheumatic heart disease if there is any suspicion that the tonsils are infected, for there is evidence that complete tonsillectomy affords some degree of protection against a recurrence of the rheumatic infection. Adenoid vegetations should be cleared away at the same time.

7. *Tobacco.*—There is no evidence that tobacco smoking in moderation is injurious to cardiac patients. Some, however, are unduly sensitive to tobacco smoke, with resulting chronic cough and increased susceptibility to upper respiratory tract infections, and in these abstinence is advisable.

8. *Alcohol.*—A glass of wine or a small whisky-and-soda with meals should not be forbidden. Strong tea or coffee should be avoided.

9. *Medical Supervision.*—All cases of chronic valvular disease should be under medical supervision. In slight cases with few or no symptoms an examination every six months or so should suffice. In severer cases the supervision should be close, for the detection of heart failure in its early stages, as shown by decreasing exercise tolerance or an increase in venous pressure, and prompt confinement to bed may save many months of tedious or grave illness.

10. *Drug Treatment.*—Tonics, sedatives, and expectorants have their occasional uses. But it is only when serious complications such as angina pectoris, auricular fibrillation, or congestive failure appear that drug treatment becomes important, and these conditions have been dealt with in other articles in this series.

THE FAULTS OF THE CURRICULUM

INTER-HOSPITALS STUDENTS' DEBATE

"That the inadequacy of medical education lies in the curriculum" was a motion proposed at an inter-hospitals debate organized by the University College Hospital Medical Society on May 14th, and held at B.M.A. House. Only students were permitted to take part in the debate, over which Sir ERNEST GRAHAM-LITTLE presided.

The motion was proposed by Mr. W. A. H. RUSHTON (University College Hospital). He was anxious that no one should think that those attacking the curriculum were unmindful of the thought and work of the men who had devoted themselves to its improvement, and he freely admitted that the benefits of any change must be largely conjectural. During the last three years—the clinical years—of the medical course incomparably more was learned likely to be of value in subsequent practice than during the first three years. To spend a year on the groundwork of physics, chemistry, and biology seemed excessive; those elementary sciences might well be dealt with at school, and the student might start at once on anatomy and physiology, but these subjects had no interest for medicine save as they were related to disease. If there was an organ—the pineal gland, for example—which could never go wrong, it could be ignored for medical practice. Medicine was concerned only with structure and function which went wrong, and therefore from the beginning anatomy and physiology should be taught in relation to disease. Of the two, physiology was infinitely more interesting; yet in the average medical school anatomy was more eagerly sought than physiology because its bearing on the subsequent medical career was perceived, whereas physiology as taught in the schools seemed a theoretical business. If the curriculum could be so altered that the student was brought into contact with some clinical material two years earlier it would mean better education for general practice.

In resisting the motion Mr. W. E. HENLEY (St. Mary's) said that undoubtedly the medical student suffered from indigestion. The opener had claimed that this was due to the indigestibility of the dish which the General Medical Council had put before him. But equally it might be due to dysfunction of the digestive system. Failure in education might be due to student, teacher, or examiner. In many cases the failure was due to the student: he started too young, or he failed to fit himself into the medical school, where he was no longer spoon-fed, as in his earlier education. Teachers often forgot that it was theirs not to inculcate facts but to teach the student how to think. They taught medicine, but not how to be a physician. Examinations, too, were somewhat to blame. Examiners were not necessarily qualified to examine any more than teachers were qualified to teach. They had attained their posts because of their pre-eminence in some branch of medicine or surgery; that did not mean that they could form a true estimate of a candidate's work. His conclusion was that the teacher, not the curriculum, was the crucial element in medical education, because he alone could develop in the student an attitude of mind without which the perfect curriculum would be of no avail.

Mr. MEIKLEJOHN (St. Mary's) supported the motion. Carrying on the digestive metaphor, he said that the student was suffering from a surfeit of fat things which no flow of bile could help to assimilate. Very few examiners in the final Conjoint would care to sit for examination in a subject other than their own, yet the student was expected, at least in principle, to cover the whole range of medical knowledge. No wonder there were nervous breakdowns in the final year. There was too much in the curriculum; something would have to go. The B.M.A. Committee on Medical Education had said that the object of medical education was twofold: to train a type of practitioner who would deal reasonably with such patients and conditions as confronted him from the early days of practice, and to produce a really educated person and not merely a skilled technician. Sooner or later it would be impossible to fulfil both those postulates. The opener apparently desired the curriculum altered so as to produce the safe technician, by implication forgoing the pre-clinical background of the general principles of medical science, and "giving the infant in arms a stethoscope." The practitioner so produced would be no more than a district nurse. He thought the solution lay in acknowledging that they could not learn all the technical side of the curriculum. The curriculum should consist of a course in the principles of medicine, surgery, and midwifery, to be followed by an academic degree in those principles, but no licence to practise. The attainment of this academic degree might require three years, and then, before practising, the student should be required to take a diploma in medicine only, or surgery only, or in a special branch.

The curriculum was defended by Mr. MARTIN (Middlesex), who likened the newly qualified doctor to a garden which had just been planted, and whose glories were for the time being hidden from view. He held a mass of facts, and he was likely to hold them out of proportion, owing to the stress of the examination to which he had been subjected, but that in no way implicated the curriculum. Mr. FRANKENBERG (University College) suggested that the poorness of the medical curriculum was only symptomatic of the poorness of medicine as a whole. What was taught in the first year could be taught equally well at school. The curriculum at present put the student in touch with a lot of useless knowledge and meant a waste of time. On the other hand, some things ought to be added to it—more teaching in psychology, in the handling of patients, in dealing with chronic diseases and those cases of colds and rheumatisms and so forth which were not seen in hospital at all, and in "sexology" and contraception, in which the doctor was regarded as an adviser of the people, though his education in this respect was no more or less than that of the man in the street. Very little was taught about genetics and heredity, and that little was superficial and zoological. Industrial and environmental diseases ought to be taught also. A synchronized biochemistry and pathology should go side by side with clinical work. The teaching of anatomy should never cease throughout the curriculum, and the dissecting room should always be accessible. Hospitals, including the municipal ones, should be interavailable, and, finally, all examining boards should be merged into one board for the whole country, running one examination for one licence.

In further discussion some students blamed the curriculum, some the teachers, and some both. There was considerable criticism with regard to the mass of facts which had to be learned when so few of those facts would ever be useful in practice. Another point was the lack of correlation of subjects; it might have been expected that the teaching of the anatomy of the alimentary system would be coincident with the study of the physiology of that system, and possibly with the pharmacology, but there was no such correlation. One speaker exclaimed for classical education; there were fewer men of culture in medicine than formerly; if a barrister, a clergyman, and a doctor sat down at luncheon the first two were likely to display a wider knowledge than the other. Mr. SINCLAIR (University College) complained that at present one stepped from academic anatomy, via pathology, straight to treatment. There was too little emphasis on applied physiology, which was really medicine.

Another speaker mentioned three current cynicisms, which he deplored. One was, "Mine not to think and look; mine but to know my book"; another, "A man does not begin the study of medicine until he is qualified"; and the third, "Medicine is that walk in life noteworthy for the slow and continuous process of the elimination of ideals." This speaker thought that these cynicisms would have less truth if some return were made to the old apprenticeship system. Any real change in the curriculum must be the work of students themselves; but students were very young, very tactless, and only for a short time students. Therefore he concluded rather despairingly that the discussion was fruitless. One speaker satirized the lecture. He recited his experience of a fifty minutes' clinical lecture—five minutes anatomy, twenty minutes surgery, and the rest of the time anecdotes from the lecturer's experience. This speaker also complained of the waste of time to which the student was subject by reason of sports and social diversions.

Sir ERNEST GRAHAM-LITTLE did not think students were as powerless as had been represented. This agitation over the curriculum had been strongly stimulated by several students' societies which had put their opinions on record.

The motion impugning the curriculum as the reason for "the inadequacy of medical education" was carried by 33 votes against 18.

England and Wales

Developments at Manchester University

Professor J. S. B. Stopford, who, as announced under "Universities and Colleges" on another page, has been appointed Vice-Chancellor of the Victoria University of Manchester, gave an interesting survey of developments proceeding or contemplated at the University in an address to its Council on May 15th. It is hoped that the new library building, with shelves for 300,000 volumes and accommodation for 220 student readers and eighty advanced readers and research workers, will be occupied in October of next year. It will house at first the 200,000 volumes in the arts collection, the science collection remaining in the Christie Library. The rehousing of the Department of Education for the Deaf has been made possible by the financial aid of the trustees of the late Lord Leverhulme. Professor Stopford highly praised this department, whose work on hearing aids, he said, had excited widespread interest; he knew of no place where both the psychological and physiological aspects of aiding the deaf were being so effectively tackled. Another important development is the conversion of the old Radium Institute in Nelson Street, near the Royal Infirmary, into Lister House, a hall of residence, at which every medical student will, after next October, spend three months during one of his clinical years. It is believed that this will prove of great facility in rearranging to the best advantage the latter part of the curriculum.

West End Hospital for Nervous Diseases

Considerable progress was made in 1934 in the extension and improvement of the work of the West End Hospital for Nervous Diseases as regards the investigation and treatment of both organic and functional conditions. The routine and research pathological activities have been greatly assisted by a gift of £3,200 in memory of the late Mrs. Josephine B. Marshall, who was a member of the committee of management about twelve years ago, and the work of extending and equipping the laboratory more adequately is being continued during the present year. The operating theatre has received a McKesson anaesthetizing apparatus and other accessories, and the increase in the surgical work of the hospital has necessitated the appointment of a theatre sister. Up-to-date shock-proof *x*-ray apparatus has been installed at a cost of £1,300, and the department has been replanned. The child guidance unit, now three years old, has been largely concerned with problems of backwardness, refractory behaviour, and delinquency, and a relatively large number of cases of speech defects, in addition to cases of tics and disorders of movement, are being dealt with. Dr. E. Miller, honorary director of this unit, states, in the annual report of the hospital for 1934, that it is difficult as yet to determine whether the large number of backward children referred to the hospital is to be attributed to greater educational pressure or to other causes, so far undiscovered. He doubts "whether the increase in delinquency is directly due to economic causes; it may rather be attributable to the psychological consequences of the financial slump and the consequent feeling of insecurity." He adds that the visible changes in family life and the breaking down of old conventions and allegiances may account not merely for the increase in delinquency, but also for the apparent increase in nervous disorders in general. The whole problem of the social aspects of the neuroses suggests that a chapter on social psychiatry remains to be written. The psychological department of the hospital is now fully equipped with materials for assessing the mental development of infants of the age of 6 months up to patients aged 18 years. A constant endeavour is made to secure that all patients suffering from functional nervous diseases shall receive adequate medical treatment, and in the rare cases where psychological treatment improves the health of a patient suffering from organic disease this is also undertaken.

City of London Maternity Hospital

Satisfactory progress is reported by the City of London Maternity Hospital for the year 1934. The maternal death rate was very low, there being only three deaths; the low figure last year of 3.4 per 1,000 booked cases fell to 1.7. The causes of death were: lobar pneumonia in a primigravida aged 42, who was in poor general condition; pulmonary embolism following phlegmasia alba dolens; and heart failure in a primigravida aged 39, who was admitted with rheumatic heart disease when twenty-eight weeks pregnant. Caesarean section was performed twenty-one times on booked cases, an incidence of 1.5 per cent.; forceps were used on ninety-four occasions in booked cases, giving an incidence of 6.3 per cent. The morbidity rate, according to the B.M.A. standard, was 4.6 per cent. Eleven unbooked emergency cases were delivered by Caesarean section (14 per cent.); obstetric forceps were used on fifteen occasions in such cases (19 per cent.); and ten patients (13 per cent.) had a pyrexial puerperium classed as morbid. There was a very low incidence of puerperal sepsis—only twenty-seven cases among 1,492 booked cases. The stillbirth and neo-natal death rates were about the usual, but in a large number of the stillbirths death occurred before the onset of labour. Many of the infant deaths were due to prematurity. The committee reports that a Royal Charter of Incorporation has been granted. A week-end course in obstetrics was organized by the medical staff, and attracted numerous entrants, while refresher courses for midwives have proved popular. The total income of the hospital was £419 more than in 1933, but the expenditure rose by £700, and it is noted that milk cost £203 more as a consequence of the increased price under the Milk Marketing Board's regulations. An appeal is made for a considerable increase in the number of annual subscribers and in bequests.

Middlesex Hospital Medical School Centenary

The council of the Middlesex Hospital Medical School has decided to celebrate the hundredth anniversary of the foundation of the Medical School on Wednesday, July 24th. In the afternoon the prizes and medals won during the session 1934–5 will be presented to students by the Chancellor of the University of London, and on the same date there will be a scientific evening. Both ceremonies will be held at the Middlesex Hospital. The students' centenary ball will take place at the Dorchester Hotel on the evening of July 25th. The programme of arrangements will be available in due course. The "refresher course" and annual dinner will be held as usual during the last few days of September and early in October respectively.

Ireland

The Dublin Maternity Hospitals

At the last meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland the reports of the three Dublin maternity hospitals—the Rotunda, the Coombe, and the National—were submitted by their respective Masters—Dr. A. Davidson, Dr. T. Hurley, and Dr. T. F. Cunningham. The chairman, Dr. Gibbon FitzGibbon, in opening a discussion on the reports, referred particularly to uterine inertia, which, he said, was the biggest difficulty met with in obstetrics to-day. From the bunching together of these cases into groups of three and five one did not get much information; a definite account of each case was what was really wanted, not a return of cases in tabular form and a statistical report. An individual account of these cases was much more important than an account of breech cases or cases of Caesarean section. The reports of the Dublin maternity hospitals compared favourably with those of the various maternity hospitals in the British Empire. Dr. Bethel Solomons congratulated the three Masters on a further

triumph for the Dublin maternity school. There were 5,354 intern cases, with a mortality of 0.83 per cent. and a morbidity rate of 4.2 per cent. Among the many points to discuss was the great incidence of induction of labour. There was no ideal method of induction, but the most suited to the greatest number of cases was: castor oil; later an enema, followed by one dose of 5 grains of quinine; and puncture of membranes. In the small number of cases in which this method was tried at the Rotunda all the mothers and babies were alive. Maternity hospitals must be very careful in nomenclature as to cause of death. Such causes as labour shock, pulmonary embolus, cardiac failure, and post-partum haemorrhage were often confused. Dr. Ninian Falkiner said that the fact that the three maternity hospital reports were now discussed together called attention to the large proportion of the total midwifery of Dublin carried out by these institutions. This proportion had not been a stationary figure for the past seven or eight years, but was steadily growing. That the increase in the total number of cases was due to economic causes could easily be understood, but the most remarkable feature was that the number of intern patients in all three hospitals had been responsible for the greater part of the additional figures. While the districts of the maternity hospitals had always played an important part in the teaching of students, he did not think that an increase in the extern cases attended by these hospitals would be an advantage. The increase in the intern cases, however, provided a tremendous amount of material, and in the year under review 5,354 deliveries were conducted in the three maternity hospitals—the largest on record. The total cases represented in these reports was 9,452, with a death rate of 0.53 per cent. The Masters of the three hospitals had a great responsibility, and, as these figures showed, the work done at the Rotunda, the Coombe, and the National was something that the medical profession in Dublin might be proud of. In view of the interest lately shown in maternal mortality, he had looked through the figures of the Rotunda Hospital's work in the past fifteen years. During that time the hospital had been responsible for 57,000 confinements with 267 deaths, the mortality being 0.46 per cent.; and there were sixty-one deaths from sepsis, which represented a mortality of 0.106 per cent. These figures could be compared with the Registrar-General's returns for the whole Irish Free State, where the average death rate for the past ten years was 0.508 per cent., with a sepsis rate of 0.154 per cent. The incidence of fatal sepsis appeared to have remained very constant in the past fifteen years.

Scotland

West of Scotland Neuro-Psychiatric Institute

Founded in 1909 under the designation of the Scottish Western Asylums Institute, and renamed in 1931, when extension of its work was associated with certain changes in its constitution, the West of Scotland Neuro-Psychiatric Research Institute in Glasgow is now working at full pressure as a co-ordinating centre for the pathological routine and research investigations of the various mental hospitals in that part of the country. In his annual report for 1934 the director, Dr. W. M. Ford Robertson, tabulates the special lines of research which are being conducted as follows: to propagate the study and elaboration of cultural methods relating to strict anaerobes, especially those of the intestine, whereby such bacteria may be classified on their cultural, microscopical, biochemical, and serological characteristics; to provide conditions of growth for these bacteria which will enable their virulence and toxic properties to be studied experimentally, and to establish by serological methods to what extent they are pathogenic to man; to determine the precise nature of the toxins elaborated, and to examine their effect on the nervous system *in vivo* and *in vitro*; and to correlate as far as possible such action with mental symptoms and the breakdown of vital body activity, especially in terms of morbid leucogenesis and disordered biochemical functions. It is pointed out that, if the foregoing can be established, it follows that therapeutic sera, vaccines, or some form of protective and curative agent of a more or less specific nature will have to be sought. Considerable progress has already been made in the first two of these lines of investigation, but the assistance of a greater number of skilled research workers is needed to establish definite conclusions in the reasonably near future. It is announced that examination of the relative values of the Wassermann reaction, and the newer and less elaborate flocculation tests for syphilis, have already advanced so far as to indicate that in psychiatry reliance on one alone of these may be most misleading. Research work is also in progress in the mental hospitals and other institutions which contribute towards the support of the Central Research Institute, and Dr. Ford Robertson paid fifty-three visits to them during the year under review, in order to assist and co-ordinate their efforts; there is still need in them of trained and experienced technical assistants to improve the laboratory services.

Extension of Work of Queen's Nurses

Steady progress in extending nursing work throughout the county is evidenced in the general report of the Midlothian County Nursing Association. This association hopes to undertake all the nursing services throughout the county, and has already affiliated twenty-six out of the thirty-one local nursing associations. It is also hoped to include in the work of the Queen's nurses the duties undertaken by health visitors and school nurses, there being seventeen counties in Scotland where such combined services are in operation. A scheme to this effect was put forward two years ago for consideration by the Edinburgh Town Council and Midlothian County Council, but it was not then approved. The question is to be raised again with the same local authorities.

Central Midwives Board for Scotland

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, have just concluded, with the following results. Out of 194 candidates who appeared for the examination 177 passed. Of the successful candidates thirty-one were trained at the Royal Maternity Hospital and sixteen at the Elsie Inglis Memorial Hospital, Edinburgh; sixty-four at the Royal Maternity Hospital, Glasgow; eleven at Stobhill General Hospital; four at the Eastern District Hospital; one at the Western District Hospital; seven at Govan Maternity Hospital; fourteen at Bellshill Maternity Hospital; two at Barshaw Maternity Hospital, Paisley; five at the Maternity Department, Royal Infirmary, Perth; thirteen at the Maternity Department, Royal Infirmary, Dundee; three at the Maternity Hospital, Aberdeen; and the remainder at various recognized institutions.

Glasgow Post-Graduate Courses

A summer session for post-graduate teaching has again been arranged under the auspices of the Glasgow Post-Graduate Medical Association. The facilities will fall chiefly into two divisions: (*a*) general medical and surgical course, and (*b*) clinical assistantships. During the last two weeks of August and the first two of September a whole-time course, for which an inclusive fee is charged, will be conducted in some of the general and special hospitals. The course will include most of the subjects of interest to the general practitioner—the mornings being occupied with general medicine and surgical diagnosis and minor surgery in the Victoria Infirmary, and the Western Infirmary, and the afternoons with special subjects in the special hospitals or departments of the general hospitals, two subjects being dealt with each afternoon. In a number of the institutions taking part in the work of the Association, clinical assistantships, which are limited in number, are available in the summer months as well as at other times. Full particulars may be had from the secretary, Glasgow Post-Graduate Medical Association, The University, Glasgow.

Reports of Societies

TOXIC DRUGS: THEIR USE AND MISUSE

Medical Society Oration by Sir William Willcox

The annual oration before the Medical Society of London was delivered by Sir William Willcox on May 13th. The orator took for his subject "Toxic Drugs: Their Use and Misuse."

He began with a reference to the wonderful advances in pharmacology during recent years. This progress had been largely dependent on the application of the great principles laid down by those outstanding pioneers of medicine and surgery, William Harvey and John Hunter. The test of experiment was applied to every new drug, and its qualitative and quantitative effects were carefully tried out before it was received into the ranks of therapeutic remedies. Animal experiments were utilized for the testing of all new toxic drugs, and were thereby a means of safeguarding human beings from dangerous overdosage. They were also used for testing the purity and potency of pharmacological preparations, thus ensuring efficiency of action and safety in use. In the case of toxic drugs it was becoming realized that animal experiment needed supplementing by careful therapeutic testing on human beings, since what applied to the animal did not necessarily apply with similar exactness to man.

The outlook of pharmacology during the present century had greatly changed. Chemical research had led to the discovery of great numbers of new compounds, particularly of organic type, and the physiological and pharmacological action of many of these substances had been carefully determined. The linkage between chemical constitution and pharmacological action had been so closely studied that the pharmacologist could to some extent deduce what therapeutic effect would result from an organic compound of a particular constitution. He could also foretell what probable variations in therapeutic action would follow the modification of such constitution. Researches such as these led Ehrlich to discover salvarsan. Similarly, in the researches on barbituric acid derivatives, the large number of new compounds introduced had not been a matter of chance but of predetermination. During recent years enormous numbers of drugs of organic type had been admitted as therapeutic remedies. Most of these had a specific and potent therapeutic action, and the borderland between full pharmacological effect and a toxic or poisonous action was in many cases narrow. The admission of new remedies of this type had been sometimes too hasty, and toxic effects had been manifest. One should be chary of prescribing such remedies unless one had personal knowledge of their use. A glowing advertisement did not relieve one of the responsibility for the possible dangerous effects following prescription.

MODE OF ADMINISTRATION OF DRUGS

Oral administration was still the route of choice, but in cases of acute illness, certainty and rapidity of action were essential, and therefore subcutaneous and intramuscular methods of administration had come into much more common use. In such administration regard must be paid to the strength of the solution, since a very hypertonic strength was apt to give rise to pain and irritation, with possible risk of abscess formation. Calcium chloride should never be given in strength greater than 1 per cent., and with calcium gluconate a strength of 10 per cent. appeared to be a safe maximum. No advantage was gained by the administration of strong and very hypertonic solutions subcutaneously or intravenously, since more dilute solutions were more rapidly absorbed, giving better results with less pain. The increased quantity of the liquid injected should not be a matter for consideration when the tonicity of the solution was the important point at issue. The solution of the drug should be as nearly isotonic as could conveniently be arranged.

After a reference to the adequate manner in which the modern outlook of pharmacology was reflected in the *British Pharmacopoeia, 1932*, Sir William Willcox touched upon the parallel advance in pharmacy. As visitor for the Privy Council to the examinations of the Pharmaceutical Society of Great Britain, it had been his privilege to see the great changes which had taken place in pharmacy during the past twenty-five years. The curriculum of training in pharmacy to-day embraced a knowledge of the principles and technique of bacteriology and bacterial sterilization, the principles of physiology, and the elements of the pharmaceutical aspects of animal therapeutic substances.

He next referred to the new Acts and regulations of recent years. He reminded his audience that since the passing of the Dangerous Drugs Act in 1920 there had been numerous statutory rules and orders, so that the dangers of addiction from such drugs as morphine, heroin, cocaine, and their allies were prevented to a great extent by State control, with the result that drug addiction in this country was very rarely met with at the present day. The Therapeutic Substances Act, 1925, marked a real advance in the State recognition of pharmacological progress, and another great step was registered by the Poisons and Pharmacy Act of 1933. The Poisons Board, set up last year, would safeguard the public against the indiscriminate use of dangerous drugs.

These enactments indicated that the State had confidence in the medical profession, and also in those practising pharmacy. The safety of the public was the aim of these regulations. Freedom of action would be given to the medical practitioner as regards the quantity of a drug prescribed, since some drugs, such as luminal for epilepsy, might be required over extended periods between consultations. The essential aim of the regulations was effective medical supervision.

TOXICOPHYLACTIC FUNCTION

The orator next spoke of the protective function of the liver against exogenous poisons such as drugs and also against those complex substances formed during digestion and metabolism. If the exogenous poison or drug was absorbed by the alimentary tract it was conveyed by the portal vein to the liver, which acted as the first line of defence. When the drug or poison was introduced into the general circulation, as in the intravenous injection of arsenobenzol compounds or the subcutaneous injection of any drug, the liver absorbed much of the poison from the blood stream and so protected the other tissues of the body. In exercising its protective function the liver cells might undergo damage, such as cloudy swelling, fatty degeneration, or even necrosis. It was known that the presence of glycogen in the liver cell increased its resisting power to poisons. It was therefore advisable that glucose should be given freely within a few hours of the administration of a toxic drug.

The kidneys showed a prophylactic function by excreting the absorbed poison which was in the blood stream. If the kidney cells were damaged by the poison so as to lose their function—a condition which occurred often in perchloride of mercury poisoning—death might result from auto-intoxication. Allergy meant an increased sensibility to some foreign substance or drug. With an allergic person a toxic drug in normal dose might have an enhanced and even dangerous effect. Allergy was not a mystery; it was generally caused by some abnormal condition which could be determined beforehand, such as a history or evidence of defect in liver or kidney function or the presence of intercurrent infection. Idiosyncrasy meant the special sensibility which certain persons had to a particular drug. For example, quinine caused deafness and even amaurosis in certain individuals when given in moderate doses. Belladonna, morphine, iodides, and arsenobenzol compounds were all drugs to which some persons displayed so remarkable an idiosyncrasy that toxic symptoms arose even from small doses.

Tolerance was developed to the continued administration of certain drugs, such as morphine, heroin, and cocaine, so that very large doses might be taken without poisonous symptoms resulting. This condition was seen in the case of morphine and cocaine addicts. Sometimes such persons might suddenly lose their tolerance, as, for example, when an intercurrent infection or illness

occurred. In such cases a customary large dose might become a dangerous one. In the case of many toxic drugs, such as the barbiturates or the quinoline group (atophan, cinchophen, etc.), a tolerance was never established, and an overdose was always a dangerous dose.

Toxic Drugs

Morphine and heroin were invaluable, and when required for pain from organic disease they should be given in such doses that effective therapeutic action was ensured. Timorous prescribing of ineffective doses was more likely to lead to addiction than the employment of adequate amounts. Morphine might be generously given for organic disease and the comfort of the patient ensured, provided that measures were taken for dealing with the cause of the symptoms. The use of morphine and heroin for psychical symptoms was attended with danger of addiction. These drugs were poisons to the liver and kidneys. If there was any evidence of defective function of these organs, such as jaundice or suppression of urine, even small doses were dangerous. Where defective hepatic or renal function existed, and morphine or heroin was urgently called for, a full therapeutic effect might be obtained from minute doses. He mentioned a case under his care, a man suffering from toxic jaundice with ascites due to a coal-tar derivative, in which it was obvious that morphine was the drug of election for the essential relief of pain. Doses of 1/20 grain were given hypodermically at eight-hourly intervals, and produced a full therapeutic effect without coma, so that the last few days of the patient were peaceful.

Arsenobenzol compounds of the salvarsan and neosalvarsan type were perhaps the most valuable of modern therapeutic discoveries. In the early days of their introduction serious toxic effects, such as toxic jaundice, acute auto-intoxication, and exfoliative dermatitis, were far from rare. At the present time, as a consequence of State control whereby the supervision of manufacture and testing of batches of the preparations were ensured, such accidents had become uncommon. Care in their use was essential if toxic accidents were to be avoided. It must be remembered that an intravenous dose was not fully excreted until a fortnight had elapsed, so that if weekly doses were given they should be submaximal. Glucose premedication was a wise procedure.

Organic preparations of antimony and the potassium and sodium tartrates of this element had been used with success in some tropical diseases. The same precautions as for arsenobenzol compounds were indicated. Bismuth preparations given intramuscularly and subcutaneously had valuable uses in the treatment of syphilis. There was a risk of severe exfoliative dermatitis in some allergic cases, and the slightest sign of any skin reaction was an indication for complete discontinuance. Organic compounds of gold had been extensively tried, and had a limited but useful place in the treatment of tuberculous affections. They had been recently introduced for the treatment of rheumatoid arthritis, but the risk of severe exfoliative dermatitis was such that the utmost care should be taken in their employment ; in his opinion other and safer methods of treatment for chronic arthritis were preferable. The speaker glanced also at mercury preparations, pointing out that the toxic effect of mercury on the kidney called for meticulous care in the use of therapeutic substances of this order.

Quinoline Derivatives: Coal-tar Derivatives

Quinoline derivatives, such as cinchophen, atophanyl, and atoquinol, had been much used for the treatment of gout and rheumatic conditions. These preparations were associated with an increased excretion of uric acid, but in some cases even in small doses, such as 5 grains three times daily for a week, a powerful toxic action on the liver occurred and fatal toxic jaundice resulted. The use of these quinoline derivatives required the greatest care, and should be limited to carefully chosen cases. They ought never to be taken except under medical supervision, and their purchase by the public except under a medical prescription should be prohibited. Dekrysil was di-nitro-cresol, a drug recently put on the market in this country, and similar to di-nitro-phenol, which had been extensively used in America. Both these drugs increased the basal metabolic rate and indirectly caused loss of weight of "slimming." They were such powerful poisons to the liver and kidney cells, and their use was attended with such danger on that account, that in his opinion they should be withdrawn from the list of therapeutic remedies. To coal-tar derivatives the human body seemed to have a natural aversion, and to prefer similar compounds when produced by nature's processes. Thus in the early use of salicylates the natural product was commonly prescribed in place of the artificial derivatives from coal-tar. The purity of the artificial salicylates, however, had now been so perfected that there was little if any difference between the two compounds.

Thallium acetate was another drug of such powerful toxic action that its use in medicine should be abandoned. The speaker had seen permanent damage to the nervous system, followed by paralysis, as a result of its use for causing depilation of the scalp hair in a child. Nirvanol, an organic preparation introduced a few years ago for the treatment of chorea, produced such toxic effects that the remedy might be worse than the disease. Aspirin was one of the most valuable and safe of simple remedies. Certain persons had an idiosyncrasy to it, as shown by tachycardia, urticaria, or digestive disturbances, when it should be avoided. Phenacetin and phenazone might be classed with aspirin. Amidopyrine (pyramidon) was a remedy largely used and in most cases non-toxic, but recently a number of cases of agranulocytosis following its use had been reported, so that indiscriminate purchase and use by the public was undesirable.

Basal Anaesthetics

Several new drugs of this type had come into common use during recent years, their aim being to produce a light anaesthesia of short duration or a condition of mild narcosis and amnesia. Avertin in experienced hands was perhaps the safest of these new drugs, and had special advantages in selected cases. It must be remembered that it belonged to the halogen group of the paraffin hydrocarbons, and had similar toxic effects to chloroform ; in other words, it had a toxic action on the liver. Barbituric acid derivatives were much used for basal anaesthesia. Nembutal, amytal, and pernocton given by the mouth had been extensively used ; they should be avoided if there were indications of any allergic condition or idiosyncrasy. Several cases of suppression of urine had followed the use of this group of drugs as basal anaesthetics. Care must be taken that the kidney function was normal. Basal anaesthetics used as an adjuvant to general anaesthesia had found a useful place in modern therapeutics, but the toxic action of the drugs employed called for careful investigations into any special susceptibility.

The sulphonal group of drugs were effective hypnotics, but their slow absorption and delayed action had caused them to be replaced by the more rapidly acting hypnotics, such as the barbituric acid derivatives. These latter were powerful hypnotics with rapid and certain action. Persons suffering from mental disorder required, and could often tolerate, much larger doses of hypnotics than normal persons. This fact explained to some extent the divergence of opinion expressed in the recent "battle of the barbiturates." At least thirty barbituric acid derivatives were in use to-day. The risk of habit formation or addiction was well known, though not to be compared with morphine, heroin, or cocaine in this respect. The fact that they might have a toxic action on the lungs, kidneys, liver, and heart had been illustrated by many recent fatalities. The danger of death from self-overdosage was too well known to need emphasis. These drugs caused amnesia, and if the tablets were at hand repeated doses might be taken unconsciously, and so a fatal dose be received.

All these considerations pointed to the utmost care in the prescribing of barbituric acid derivatives, and to the need that they be taken only under medical supervision, "by prescription," and not purchased indiscriminately by the public. Sir William Willcox mentioned a recent case under his care in which a man obtained by a pre-

scription several years old a tube of twelve dial tablets. He took nine of them in five days, and this was followed by coma, typical barbitone pneumonia, and death. The case illustrated the powerful and fatal effect of a barbituric acid drug on a susceptible patient. Toxic drugs were powerful weapons for therapeutic use, but their employment must be tempered by knowledge and experience of their action, and careful investigations must be made as to their safety in prescription for any particular case.

DIET IN PREGNANCY

In the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on May 17th, Mr. EARDLEY HOLLAND presiding, a discussion took place on diet in pregnancy.

GENERAL CONSIDERATIONS

Dame LOUISE MCILROY introduced the subject with some general considerations. She remarked on the slightness of the investigations which had hitherto taken place. Opinions must not be too dogmatic, because really very little was known about normal physiological requirements. Diet should be ample, but not excessive. Milk was obviously an important constituent. She wondered why there was so much outcry about the destruction of vitamins in milk by pasteurization and so little said about vitamin deficiency which resulted from the storage and slow cooking of vegetables and the use of preserved foods. Carbohydrates were very important for nutrition, neutralization of fatty acids, maintenance of normal alkali reserve, and foetal growth. Protein diet in pregnancy ought to be low; an excessive intake led to a production of toxic substances. Fats also should be low in pregnancy, though they were needed for heat production and the nourishment of the foetus. Eggs, she thought, should be restricted to one a day. What she was concerned to emphasize was the need for a good mixed diet of fresh foods, mostly carbohydrate, with a medium supply of proteins and a low fat. Anything wrong in the excretory functions might be counteracted by a walk of two miles a day during pregnancy. The teaching of food values and the cooking of foods was also important. The prevention and treatment of the diseases of pregnancy was to be found rather in the larder and kitchen than in the pharmacy. Expensive preparations and proprietary foods would be unnecessary if the diet were mixed and adequate.

DIETETIC DEFICIENCY AND TOXAEMIAS OF PREGNANCY

Dr. G. W. THEOBALD discussed the dietetic hypothesis of the toxaemias of pregnancy—namely, that all the associated ailments and toxaemias were caused by an absolute or relative insufficiency of some substance or substances in the diet. The implications inherent in such hypothesis were: that the toxaemias of pregnancy could be prevented; that there was no essential difference between the mode of causation of any of the toxaemias; that the renal symptoms were merely incidental and the kidneys played no part in the causation of the toxaemias, and that there was no such thing as a pregnancy toxin. The fundamental differences between deficiency symptoms occurring in the pregnant and in the non-pregnant state were the relatively rapid onset of the disturbance in pregnancy in a previously normal individual, and the fact that the foetus—a true parasite—robbed the mother of important substances of which she had an inadequate supply for her own needs. The proof of the dietetic hypothesis could be obtained either by preventing the onset of symptoms in an adequate number of pregnant women or by curing patients who manifested toxaemic symptoms merely by adding the necessary substances to their diet. The first of such lines of proof was beset by difficulties, but he was able to report the results obtained in sixty-nine toxaemic patients admitted during the last sixteen months to the ante-natal ward of St. Mary Abbots Hospital who were given an exceptionally full vitamin-rich diet, and although it is difficult to set out the results in tabular form he maintained that they amounted almost to proof of the dietetic hypothesis as capable of explaining all the known facts concerning the toxaemias of pregnancy. He had been asked whether the experiment suggested that there was any truth in the supposition that chronic nephritis was likely to follow the placing of such patients on a maximum diet. In his judgement there was no evidence in favour of that at all, and he thought some writers on the subject had betrayed an ignorance of the elementary laws governing statistics. What was called chronic nephritis was not the result of an infection—acute, subacute, or chronic—but an inborn error of metabolism. In illustrating the diets given to the women who figured in the experiment, he said that it was often assumed that the merest trace of each of the vitamins in the diet was sufficient for the individual. But evidence was daily accumulating that some persons required more of a given vitamin than others. Further, the food itself required vitamins in order that it might be satisfactorily assimilated; a high protein diet required more vitamins B and D than a mainly carbohydrate diet. A serious deficiency of one vitamin might interfere with the action of the others, and the harmful effects of vitamin deficiency were enhanced if the diet were unbalanced. Pregnancy required an increased intake of all the vitamins. If a woman commenced pregnancy with a low vitamin reserve and the intake were insufficient she must suffer, and possibly the ensuing symptoms would be many. If the hypothesis were true that all the ailments of pregnancy were due to dietetic deficiency, it followed that fresh light would be shed on the early stages of disease which occurred in the non-pregnant state. Such a view also made it unreasonable to retain the term "toxaemias of pregnancy." All deficiency diseases might be grouped together as the "atelocyteses." The nutritional anaemias would thus be styled the "atelocytetic anaemias" and the toxaemias of pregnancy the "encymotic atelocyteses."

CALCIUM METABOLISM IN PREGNANCY

Professor STUART J. COWELL said that during the intense investigations on nutritional problems which had taken place during the last twenty-five years a great deal of special work had been done on the relation of calcium metabolism to the processes of reproduction. The field was opened by the fundamental discovery of Mellanby of the action of the specific calcifying vitamin D. Since then there had been a large number of observations, based both on animal experiments and on clinical work, which had thrown light on this very important problem. During pregnancy the mother was herself storing calcium in larger quantities than were actually required by the foetus. Only during the last month of pregnancy was the foetus actually taking up more calcium than the mother was storing. The storage of calcium during the last month of pregnancy was colossal. That was why premature children were so liable to suffer from deficient calcification: they had been deprived of the full benefit of the mother's calcifying mechanism, which was much more nearly perfect than anything that could be devised in the way of treatment. How was it to be ensured that the necessary material was available and could be assimilated by the mother to effect this necessary storage?

Adequate calcium storage depended, in the first place, on a sufficient supply of calcium in the diet, and, in the second, on a supply of phosphorus, which latter could sometimes, apparently, be of greater importance than the calcium. Some important observations had been made in South Africa on conditions of osteomalacia in cattle. The bones of the animals grazing on the veldt over huge tracts of land were found to be rapidly decalcified, with great loss to the cattle farmers, and the prime cause was discovered in a deficiency of phosphorus in the pasture owing to a similar deficiency in the soil. In some species of animals that deficiency of phosphorus could be one of the chief determining factors in limiting storage of calcium phosphate in the bones. When calcium was insufficient grave disorders might result. The first was osteomalacia, which condition, it was now accepted, was very similar to rickets in children, and depended on the same factors. It was also possible that the rapid extension of dental caries, which was common in pregnancy, might be related to a disturbance in the calcium metabolism. Another symptom which might be produced

from such deficiency was tetany and tetanoid symptoms such as cramps. There was a good deal of experimental evidence that feeding of the mother during pregnancy had considerable effect on the calcifying properties in the bones and teeth of the child later in life. Animal experiments had shown the importance of maternal diet in resistance of the offspring to rickets, though at the same time it was not wise to assume that because the mother had been treated with a good calcifying diet during pregnancy therefore her children were necessarily resistant. The simplest method of securing an adequate supply of calcium during pregnancy was to make use of the natural rich sources of calcium in milk. At least two pints a day should be given. The other rich sources were cheese and green vegetables. It seemed advisable to make use of eggs for the sake of the yolk, and for an artificial source of vitamin D either cod-liver oil or one of the concentrated preparations might be given.

DIET AND RESISTANCE TO INFECTION

Dr. H. N. GREEN said that the role of diet in the prevention and treatment of infection could not yet be assigned. Diet was undoubtedly a factor, but how large or small remained to be discovered. Undoubtedly poor diets might produce a lowering of resistance and increased susceptibility to infection. In vitamin A deficiency it was well established, experimentally, that there was a greatly increased liability to spontaneous infection. In the rat he had shown that vitamin A demand increased during pregnancy. It seemed evident that vitamin A reserves in a woman following pregnancy were very often lower than in the normal individual. A prophylactic experiment with this vitamin suggested that it had some power in raising resistance during the puerperium. The possibility of treating puerperal sepsis by dietary methods needed further investigation. Other nutritional factors, in addition to vitamin A, were probably of importance in maintaining the resistance of the pregnant woman, these including iron, calcium, vitamin D, and vitamin B complex, but direct evidence on the point was lacking. He stressed the need for more research, experimental and clinical, into these problems. The complete eradication of rickets should not be out of the question along these lines of nutritional investigation. The major abnormalities of rickets were disappearing, but minor defects were common, and it was possible that these might persist, and in the female produce an abnormality of the pelvis with unfortunate consequences in the next generation.

NUTRITIONAL ANAEMIAS IN PREGNANCY

Dr. LUCY WILLS said that pregnancy was a normal physiological process, and a woman on an adequate, well-balanced diet should require no dietary modifications during pregnancy other than those dictated by increased appetite. Owing to present economic and social conditions and customs, however, very few women—even of the better-to-do class—ate such a diet, with the result that deficiency anaemias were common during pregnancy. A low-grade hypochromic anaemia was very common in this country when the extra demands of pregnancy were made upon the woman, and this did not only apply to the poor. In all countries an iron-deficiency anaemia, conditioned by a deficient iron intake rather than a failure in gastric secretion, might manifest itself first in pregnancy, but more commonly the anaemia was only an exacerbation of a condition already present, caused by the increased demand for iron during pregnancy. In a proper state of society, where wages were good and diet sufficient, the means of prevention should be adequate supplies of iron-rich food, but as things stood a ration of iron in some such form as iron ammonium citrate might be required. The so-called pernicious anaemia of pregnancy was very rare in this country, but frequent in some tropical parts. It was not an idiopathic pernicious anaemia, but a straightforward crude deficiency in the diet, probably of Castle's extrinsic factor, and could be prevented by the addition of liver or liver extracts or marmite (autolysed yeast). If the pregnant woman were given during pregnancy a ration of iron and a ration of liver or autolysed yeast the problem of anaemia in pregnancy should be more or less solved.

GENERAL DISCUSSION

Professor JAMES YOUNG suggested that the subject was of such great concern to the community that it might be worthy of consideration how far the data had now been assembled which would justify the appointment of a committee to formulate certain conclusions. During the last year or two the general subject of nutrition from the community standpoint had been recognized to be very important by the appointment of committees which had issued useful reports, and he felt that on this question of nutrition of pregnancy it might now be feasible to have some such committee set up.

Dr. V. B. GREEN-ARMYTAGE said that this was not altogether a new subject. One had only to read the books of Samuel and Kings and the Song of Solomon to discover how an ancient race understood the connexion between foodstuffs and the propagation of the species and the prevention of ill-health. When it was said of Rebekah in Genesis that the twins struggled together in her, so that she said, "Why am I thus?" it was a clear case of dietetic deficiency in an elderly primipara. He also drew attention to the death of Rachel in childbirth, while journeying in the land of Canaan. A proper diet was undoubtedly one of the foundations of health in pregnancy. There was also an important preventive aspect. It had to be realized that every child of every anaemic woman, even though it might be healthy, its red blood count normal, and its liver stocked with zinc and iron and copper, would, within a very few months, develop rickets if it was not properly and adequately looked after. These children suffered from a congenital absence of the anti-rachitic factor, vitamin D. He suggested that in certain cases there was a drain upon the calcium metabolism of the female foetus, and that it was this drain which at times caused trouble in the pelvic bones and joints, and might lead to funnel pelvis.

Dr. S. K. WESTMANN referred to the gigantic involuntary experiment in malnutrition which took place in Germany during the later years of the war, when lack of certain produce led to the starvation of a population of sixty million. But a comparison of the average weights of 3,000 children born in 1910–13 with 3,000 born in 1917–19, as ascertained in the Berlin University Clinic, showed that on the average the children born during the later years were 6 grams heavier than those born during the earlier. The foetus had grown at the expense of the mother. Furthermore, in Germany the cases of eclampsia showed a striking decrease during the last two years of the war. In the years just before the war the incidence of eclampsia was about 2 per 1,000 births, but in 1918 it was 0.6, while in 1922 it had gone up again to 2.2. When a lacto-vegetable diet was introduced in the ante-natal department at Berlin, with plenty of vitamins in the way of cod-liver oil and fresh liver, the incidence of eclampsia fell again to 0.8 per 1,000.

Mrs. D. C. WILSON spoke of experiences in the Punjab, where rickets and osteomalacia had been rife. It had been shown that by altering the diet the conditions could be greatly relieved. The Government of the Punjab was doing much by encouraging the growing of vegetables; until recently most of the families never saw any greens, and dietaries were very deficient in fat. Mr. R. H. PARAMORE said that in eclampsia excess of foods rather than deficiency seemed to be a governing factor. He pointed out that post-partum haemorrhage was never followed by post-partum eclampsia, and bleeding was one of the best methods of avoiding the latter. He also referred to the value of calcium in persistent vomiting. Dr. DOROTHY LOGAN related the experience of an ante-natal centre where calcium lactate, sufficiently fresh to be sure of dissolving in boiling water and remaining dissolved, was given almost as a routine in ante-natal cases. A fortnight's supply cost the patient threepence, or, at most, sixpence. Many London mothers could not afford sixpence a day for a quart of milk. Sir ROBERT ARMSTRONG-JONES mentioned that a special committee had been appointed by the People's League of Health to consider the question of nutrition in relation to puerperal morbidity and mortality, and the first two speakers in the discussion were members of it. The application of the

information which had been elicited that evening would be most valuable.

The PRESIDENT (Mr. EARDLEY HOLLAND) thanked Professor Young for his suggestion of a committee to formulate conclusions, and promised to bring it before the council of the Section.

STERILIZATION IN SOCIAL PSYCHIATRY

At a meeting of the Section of Psychiatry of the Royal Society of Medicine on May 14th, with Dr. DAVID FORSYTH, president, in the chair, Dr. C. P. BLACKER, secretary of the Eugenics Society, read a paper on the uses and limitations of sterilization in social psychiatry. He reminded the Section that in January of last year the Departmental Committee on Sterilization, which was appointed in 1932 by the Minister of Health, issued its report. The report advocated that, subject to certain safeguards, facilities for voluntary sterilization should be available for persons in certain categories. The psychiatric implications were so numerous that he had no time to deal with them all, and the title of the discussion purposely omitted the question whether sterilization should be voluntary or compulsory.

EXPERIENCE OF FOREIGN COUNTRIES

Dr. Blacker dealt first with the provisions of the sterilization law in force in Germany. Nine conditions were stated as justifying the sterilizing operation: hereditary disease, innate mental defect, hereditary epilepsy, Huntington's chorea, hereditary blindness and deafness, severe physical deformity, severe alcoholism—no mention being made of heredity in reference to the last-named. The person concerned might himself apply for sterilization to be carried out, or the application might be made by the official doctor of an institution. This German Act also provided for the appointment of eugenic courts for the prevention of hereditary disease. For cases in which objection was made to the carrying out of sterilization, facilities were provided for appeal to a higher court. In that country it was found that two-thirds of the petitions for the procedure were made on behalf of feeble-minded persons. It was the duty of the German doctor, under this law, to notify to some central authority the cases which appeared to come under the Act, in much the same way as measles was notified in this country. A great deal in the successful application of the Act depended, naturally, on the relating of accurate pedigrees concerning the intended subjects. When the people came to realize the full implication of giving full particulars, they became reticent, feeling that they might be placed in an institution as a preliminary to the carrying out of sterilization. It had also been felt that the supplying of full details would interfere with the intimate relationship that should exist between the medical man and the family. A marked difference had been noted in the degree of thoroughness with which this law was administered in the various German States. In one State, two-thirds of the applications for sterilization were for its compulsory exercise; in other words, application was made by persons other than the one concerned. The mere fact of having committed a crime was not held, in Germany, to qualify for sterilization, but, on the other hand, a separate law provided for the carrying out of castration if a man was found guilty of a sexual crime. In the nine conditions set out there was no reference to race; Jews were not specially mentioned.

In the United States sterilization on grounds other than therapeutic was now legal in twenty-seven States, but the laws in those States differed from each other. In 1930 the Municipal Court of Chicago appended to its report a supplement which provided for the creation of a scheme of State eugenics, which gave power to demand intimate information. In California there was a State Board of Eugenics, set up for the purpose of considering applications for sterilidation coming in from various sources. Its chief function was to act as a check or brake. This Board was not empowered to carry out sterilization, but when the procedure was proposed by someone else it possessed the power of veto. It was an improvement on the German Act, as it did not impose on doctors the duty of notification.

COMPARISON WITH THE BROCK REPORT

Dr. Blacker said he had entered thus into the enactments of other countries on this question so as to make a comparison with the provisions of the Brock Committee. The Brock Committee condemned compulsion, largely because of the lack of definite knowledge as to the results in the matter of progeny which would accrue from different matings. But the committee regarded voluntary sterilization in a different light, in which regard its findings and decisions were unanimous. It was one of the statements of that committee that sterilization, even when voluntarily applied for by a person for himself while he was in full possession of his normal faculties, was illegal; but it was impressed by the injustice of refusing the operation to those who believed they might transmit mental disorder to their offspring. Self-restraint was regarded by such people as no safeguard. It was, in the view of the Brock Committee, unreasonable to deny to feeble-minded people what might be a therapeutic measure. A candidate for sterilization might be so defective mentally as to be incapable of either giving or refusing his consent, and such people did not understand the implications of the importance of reproduction, and the withholding of the opportunity for reproduction did not act as a hardship to them.

The Brock Committee had set up a number of safeguards. One was that a medical opinion must be supplied to the effect that one of the grounds for the operation mentioned in the report applied in the case. If the person in question was one who had recovered from a mental disorder, one of the two medical recommendations must be that of a psychiatrist. In addition to certifying that the applicant was a proper person for the procedure, it must be stated that it would not have any adverse effect, as, in the case of sexual delusions, these might be aggravated by such an operation. A further recommendation of the Brock Committee was that the spouse must be notified of the application of the partner for sterilization; it was thought undesirable to give the spouse power to veto the procedure. It was stipulated that the operation should not be performed in an institution, because the public might consider that admission to such institution was a preliminary to sterilization.

Dr. Blacker considered that the study of genetics was much neglected, and there were few who were capable of teaching the subject. At present there was not enough knowledge to estimate how far the measure would be sought by carriers, yet sterilization applied to the carrier possessed much more value than when applied to the actual defective.

DISCUSSION

The PRESIDENT said that people who asked to be sterilized when there was no need showed that they were neurotics; they were suffering from anxieties, and should be referred to a psychological specialist. In the new medical curriculum these matters would enter, so that the future general practitioner would be in a better position to deal with them than were so many now. He fully approved of the Brock Report, yet there was in it much that was experimental. Cases of transmissible diseases were fit ones for sterilization if the persons affected themselves wished it. He still had doubt as to schizophrenia and manic-depressive insanity, as the causation of these conditions was not known.

Dr. F. C. SHRUBSALL said it was important to envisage what was likely to happen if sterilization were employed on a large scale. Many who asked for sterilization did so on financial grounds. He thought that superintendents of mental hospitals would be much happier if those they allowed out on licence were sterilized. Dr. G. W. B. JAMES said that the Brock Report was so recent that it was a little too early as yet to arrive at conclusions as to its recommendations. What seemed to be a contradiction was to speak of allowing voluntary sterilization to mental defectives; there could be no voluntary behaviour

on the part of a mental defective. Medical men as a whole were very shy in carrying out their duty to inform the public on certain main points. There was little exact scientific knowledge on the subject of genetics, and a tendency to rely on opinion and reminiscence rather than on scientific facts. Genetics, as a science, was as yet only in its infancy. Dr. LETITIA FAIRFIELD suggested that the profession was trying to do too much in regulating the human race. She favoured leaving the matter alone.

"THE LIVERISH PATIENT"

At a meeting of the Devon and Exeter Medico-Chirurgical Society held on April 25th, with the president, Dr. F. N. SIDEBOTHAM, in the chair, Dr. H. E. MCCOLL read a paper on the treatment of the "Liverish Patient."

Dr. McColl said that "liverishness" was one of the commonest, and at the same time one of the most loosely applied, terms that haunted the consulting room. In most cases, however, one or more of the following symptoms were associated—lethargy, anorexia, constipation, headache. Excluding such cases as were due to some underlying organic disease, he considered that "functional" cases of "liverishness" might be divided into two main types. In Type I lethargy, anorexia, and constipation were marked, and headache was absent or slight. Conversely, in Type II lethargy was slight, anorexia absent, constipation slight, but headache an early and prominent symptom. In Type I he visualized a definite hepatosis (possibly a cloudy swelling of the liver cells), and contributory factors were alcohol, various infections, food poisoning, or overloading with food—especially excess of fats. Fatigue was also concerned in the aetiology. This hepatosis was followed by gastric catarrh, with the concomitant symptoms of the latter. He considered Type II as actuated by nervous overstrain in a subject predisposed to this type of reaction. This state of nervous tension caused a "hold up" (partial or complete) of gastric secretion, and there resulted a liberation of the toxic products of imperfect digestion into the blood stream. If given time these products might poison the liver and produce hepatosis, although this rarely happened, owing to the early onset of headache calling for treatment in the initial stage. Dr. McColl offered the designation "status migrainicus" for this type of attack.

CLINICAL CHARACTERISTICS

Type I was characterized clinically by gradual loss of energy of varying duration, loss of appetite, and constipation. An aperient did not relieve the symptoms. On examination, a patient so affected showed a toxic appearance, with the tongue furred and dry, the eyes dull, with yellowish sclerotics, and with a pulse of slow rate and poor tone. Palpation of the liver would reveal a very definite tenderness and apparent enlargement. Type II might occur abruptly after some sudden strain or anxiety. Associated one might expect to find a dull and very oppressive headache, diminution of mental clarity and power of concentration, a feeling of "hold up" in the abdomen, and a tendency to small gaseous eructations. The subacute variety ("status migrainicus") had its typical onset after breakfast, being preceded by a feeling of unusual keenness and well-being, and often by the passage of a rather large stool. Associated were the same initial headache and the passage of scanty and concentrated urine—that is, "urinary hold up." Contrariwise, the voiding of a pale urine in large quantities was the earliest sign of recovery. Clinically there was no toxaemia—although the facies was heavy and strained. The tongue would be as a rule clean, the skin cold, and the pulse small. The attack was not accompanied by hepatic enlargement, but in certain cases there was unmistakable evidence of hypoglycaemia at some period of the attack.

TREATMENT

Turning to treatment, Dr. McColl advocated for cases in Type I complete rest in bed and application of heat to the hepatic area, together with a "starvation diet" limited to water, lemonade with glucose, or weak tea. After forty-eight hours 1 grain of calomel should be taken at night, followed by Epsom salts in the morning. The diet then might be increased gradually, and the patient allowed out of bed. An alkaline mixture might be helpful at this stage. The period of rest required would depend upon the degree of physical exhaustion that was present. In respect of Type II, no known treatment would abort an attack, and the chief concern should be with prophylaxis. Here Dr. McColl dwelt in some detail, emphasizing the point that a triad of "outputs" had to be considered—namely, the physical, the digestive, and the nervous output. It was important to guard the patient against being "strung up" and against making a large physical and brain output on the same day. In the same way, warning should be given to such persons against eating a big meal soon after physical exercise. Alcohol aggravated the attack, more especially when taken in small amount. During the attack, rest, aperients, and reduction of diet were useless, and it was best to carry on with the customary activities whenever possible. Headache, if severe, should be relieved by one of the coal-tar derivatives—a combination of aspirin, phenacetin, and caffeine citrate, or aspirin with phenacetin and codeine phosphate more commonly gave relief, but there was considerable variation in the response to this group of drugs. Usually it was well to disregard the headache and proceed to routine treatment, with a mixture of sodium salicylate, sodium bicarbonate with or without sodium bromide—(10 grains of each) taken four-hourly. Coincidently a tablet of calomel (1/8 grain) should be taken and repeated four-hourly until relief was obtained. After forty-eight hours a strong dose of magnesium sulphate was given, the mixture being continued and the salts repeated on the following morning. The mixture was then replaced by dilute nitro-hydrochloric acid with sodium bromide, taken after meals, for several days. Under these measures most patients with "status migrainicus" made a rapid recovery, and were enabled to carry on their daily occupations with more comfort. In conclusion, Dr. McColl protested against the attempt to label a Type II attack "abdominal migraine" and to leave it there. Here was an obscure and interesting condition, and in the approach to the problem the leading characteristics of the allergic constitution should be borne in mind—namely, maximum response to minimum toxic stimulus. In other words, Type II was the response of the allergic subject to the same poisons, which in one less sensitive produced Type I attack at a much later stage. Type II attacks therefore prevented the patient having more serious hepatosis, just as an allergic person was protected by his sensitiveness from other major illnesses.

DISCUSSION

The PRESIDENT congratulated Dr. McColl in having brought so much illuminating information on a subject of such interest to the man in general practice. He asked if any explanation could be given for alcohol in small doses proving more productive of headache after exercise in Type II cases. He also inquired as to the action of tobacco in the same connexion. Mr. A. GAIRDNER asked what was meant by hepatosis, and was one to comprehend a microscopical morbid entity or merely a tender and enlarged liver.

Dr. CHARLES SEWARD remarked that the condition described in Type II often occurred at the week-end, and that in the working class the explanation might be found in the transfer to a richer diet. With business folk, on the other hand, there would be the effect of emotional fatigue on the gastric secretions, and a resulting hypochlorhydria.

Dr. MCCOLL, in his reply, said that he could offer no reason for the particular action of alcohol in the instances quoted in his paper. He did not consider that in Type II any morbid process was present in advance of cloudy swellings. He had no pathological proof to bring forward, but this was his own conception of the condition he had described as hepatosis. It was to be remembered that the condition might clear up in thirty-six hours, so that any more profound change was unlikely. As regards tobacco, this seemed to have no action *per se*, but its concerted action would be towards a "hold up" of peristalsis.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

The Curriculum and General Practice

SIR,—I have read with great interest the report of the Conference on the Medical Curriculum. Any report on this subject is bound to call forth a great deal of discussion; but here I feel that a most sane view has been taken. A real effort has been made to lighten the burden of the time-table, and at the same time to produce a qualified man more able to use his accumulated knowledge in a practical way.

At the same time there is an important constructive criticism to be made. The main aim of the medical curriculum is to fit the young student with the ability to practise medicine on the general public. It is to train the general practitioner rather than the specialist. Ninety per cent. of the qualified students go into general practice, and it is for them that the medical curriculum must mainly be constructed. This has evidently been borne in mind, but, on looking through the list of names of the members of the Conference, we see *not one* of a general practitioner. Such men could really have told the Conference where, in his first few years, the general practitioner found himself handicapped by complete ignorance; and, on the other hand, what knowledge had died stillborn at examination. Moreover (without diving too closely into the biographies of the members of the Conference), one can still safely say that very few, if any at all, have ever at any time had any personal experience of general practice. So that the body which advises on the teaching of the subject of general practice is picked from men who have no practical experience of that subject at all. All the more credit to them for producing such a wise report!

This criticism, however, goes further into the teaching of medicine. Sir Thomas Lewis has recently drawn attention to it in his Huxley Lecture, which should be read and re-read by all who teach any branch of medicine. If he will forgive me for quoting:

> "The man who is fit to train the practitioner to begin his life work must be thoroughly familiar with everything that makes for successful practice, must himself be in practice, must not only understand disease and its management in its detail, but must be competent in managing sick people and their friends; he must be familiar with the science, skilful and precise in the craft, and versatile and diplomatic in the art. But these varied accomplishments will not fit him for the professorial chair."

Here is described the ideal teacher, the successful and experienced general practitioner himself. And, fortunately, very often to the junior partner or assistant he *is* the teacher. The old apprenticeship system still holds good for those who choose to serve under it for a time before launching out for themselves. It is common advice to the young doctor, on leaving hospital, to "cut his teeth on someone else's practice."

But there must be many who, like myself, were obliged to take over a practice single-handed, with no wise partner in the background to counsel and caution. Experience can only be gained at the expense of mistakes, and these bring needless work and worry. After smooth hospital routine the actual working of the practice is completely new ground. To deal with illness in the house itself, with nursing only by inexperienced relatives, requires new knowledge. Out of the universal equipment of the hospital, what does the young practitioner need, in minimal essentials, of instruments and drugs? What are the customs of the doctor as regards surgery hours, calls, visits, etiquette, relatives, and so on? Even more fundamental, of what does general practice itself consist? What are the great differences between town and country practice, between national health insurance and part-time M.O.H. work? What are the advantages and disadvantages of contract work? What outside interests can be indulged in local hospital work, in schools?

I seriously suggest that enormous benefit could be added to the ordinary teaching of medicine if there were, at any rate available to those who wished, *a course in general practice*. Such a course need not burden the curriculum at all. It could be either a post-graduate course at the Post-Graduate School of Medicine, or, better, a series of one or two lectures a week, spread out over several months, during the time spent in hospital as a house-surgeon or house-physician. Such a course could deal with all those questions already enumerated, and could also give practical instruction in that bugbear of the general practitioner, book-keeping and record-taking; the ins and outs of national health insurance book work could be simplified; the district nurse, her work and usefulness, could be introduced; dispensers and dispensing could be dealt with. The young practitioner equipped with such an introduction would feel far greater confidence when first starting in general practice, and the problems he meets would be far less terrifying, merely because they are the ones of which he has already heard. On the other hand, a man about to engage a junior partner, assistant, or locumtenent would feel far greater confidence if he was assured that, however raw his young colleague was, at any rate he knew the rudiments of his job, apart from bare medicine.

I am convinced that such a course will come in time in some form or other. I am sure, too, that its need will be shown by a huge attendance of recently qualified and final-year men; and finally, I am convinced that the first hospital to adopt such a scheme unofficially would attract large numbers of students, solely because it provided the course in general practice that I am advocating.—I am, etc.,

Dunmow, Essex, May 18th. G. O. BARBER.

A Common Final Examination

SIR,—I feel that I, and all readers of the *British Medical Journal*, ought to express our thanks to "A Layman" for the pains he has taken to clear up the problem of the common final examination for medical qualification.

He seems to regret that the common final examination scheme has not been brought into being, and he quotes Sir Henry Acland's words as a justification for repeating the effort. If the attempt were made again I fear it would fail, and for the same reasons that brought it to grief before. When I use the word "fear" perhaps I ought to say "hope." Experience leads me to believe that it is better for each university to conduct its own examinations. This ensures some diversity both in teaching and in examining, which is no bad thing, whilst free interchange of external examiners serves to maintain a reasonable uniformity of standards. The General Medical Council by means of its inspectors helps, although in a less degree than external examiners, to a uniform requirement for qualifying examinations.

It must be realized that no one would tolerate a centralized examination in London—a common final examination would have to be conducted at numerous centres, as are the examinations of the Central Midwives Board and the General Nursing Council. I have recently published my views on licensing corporations which have no

responsibility for training. I will not repeat them here. If there is a demand for a lower grade of medical practitioner to undertake whole-time State service a low-grade common final examination may have to be instituted, but it would be regrettable.—I am, etc.,

Clifton, Bristol, May 15th. J. A. NIXON.

Progress in Medicine

SIR,—Dr. Berg's gentle reproof is apparently based on a misunderstanding of what I said. The remark that the services of Freud to knowledge have been as great as those of Darwin surely implies no disrespect to psychotherapists. Nor did I imply that I could do better without psychotherapists; I only mildly suggested that their internecine quarrels gave a handle to a criticism which is often made. In psychotherapy, as in other branches of healing, there is need both for the profound researches of the investigator and for the "first aid" which only the general practitioner is at hand to give. There is a psychical aspect of every physical ailment. As a member of the Medical Curriculum Conference, therefore, I consistently maintained the necessity of psychology as an integral part of the training of every medical student, and our report was unanimous on that point.

Naturally, my opinion of psychotherapists is "subjective" in origin, whether "of value" or not. So, I imagine, is the psychotherapist's opinion of himself.—I am, etc.,

Cambridge, May 18th. W. LANGDON-BROWN.

The Osteopaths Bill Inquiry

SIR,—I have read with interest Mr. Blundell Bankart's letter on the Osteopaths Bill inquiry (May 11th, p. 999). From this letter it appears quite clear that the writer is under the impression that he well understands what osteopathy is, and that the medical witnesses who gave evidence at the inquiry do not. With this statement I entirely disagree. At the outset of the inquiry it proved almost impossible to make counsel for the osteopaths and the members of the committee distinguish between the theory of osteopathy and the practice of osteopathy, and this led to much confusion. It was, however, the ultimate realization of this point which was one of the main factors that caused the collapse of the Bill. Mr. Bankart states:

> "Osteopathy has nothing to do with manipulative surgery. It is true that many osteopaths do a certain amount of straightforward manipulation of joints other than those of the spine, but that is not their creed and it is *not* osteopathy."

Such a statement suggests that the writer of it, like many members of the committee, has also failed to differentiate between the theory and practice of osteopathy—in comparing manipulative surgery and osteopathic treatment the suggestion of similarity lies in a comparison of the *method* of treatment, and not the creed. Briefly, the practice of osteopathy is essentially dependent on manipulation of parts. The manipulations were originally confined to the spine; the modern osteopath now manipulates all joints, and the reason for such manipulations was founded on osteopathic pathology, which has not a vestige of scientific evidence to support it.

It seems incredible to me that anyone who claims to have a knowledge of what osteopathy is should deny that the basis of osteopathic treatment, whether applied to the spine or other joints, is manipulation, and to raise a discussion at this juncture on such a trivial point seems to me to be peculiarly unhelpful and unwise, and merely confuses the issue. I am quite prepared to admit that osteopathic manipulations *per se* may not be of the same value as manipulations based on sound pathology, such as are carried out by efficient orthopaedic surgeons, but it cannot be denied that a knee-joint limited in its range of movements by adhesions might equally well be freed by successful manipulation carried out by an osteopath as by an orthopaedic surgeon; the result would be the same, but the osteopath would claim that it was due to the effect of his manipulation to correct the "spinal lesion," which he would carry out at the same time as the manipulation of the knee, and the average patient would believe this theory. A "bone-setter" might succeed equally well in a similar case by manipulation, but he would explain the result by stating that he had replaced a bone that was "out," and the patient would naturally believe this if his knee were cured.

Mr. Bankart's opinion that the osteopaths staked their all on the misrepresentation that osteopathy is the same thing as manipulative surgery, and that the medical witnesses played into their hands by allowing this falsehood to pass unchallenged is totally inaccurate, although it is the main point on which his letter is based. May I emphasize that he is fundamentally wrong in this opinion, as Dr. Macdonald, on behalf of the osteopaths, expressly stated that osteopathy is *not* manipulative surgery, and he repeated this in the book he produced specially for the committee under the title *The Scientific Foundation of Osteopathy*. Osteopaths deliberately deny that manipulative surgery and osteopathic manipulations are similar, chiefly because it is to their advantage to encourage the deception and so lead the public to believe that their methods of treatment are different from any other, and in this way to retain the magical glamour of their descriptive word "osteopathy"—which is undoubtedly a valuable trade asset, and has completely bemused the public.

I can assure Mr. Bankart that all the medical witnesses were perfectly cognizant of the fact that the essential difference between manipulative surgery and osteopathic manipulation lies in the fact that osteopathic manipulations are based on a pseudo-pathology, and are claimed to be a scientific method for the treatment of *all* diseases, whereas manipulative surgery is based on accurate physiological and pathological knowledge, and makes no such ridiculous claim. Further, that in spite of the difficulty, for obvious reasons, of making the members of the committee realize this, every effort was made by the medical witnesses to do so, and they succeeded.—I am, etc.,

London, W.1, May 14th. MORTON SMART.

State-organized Medicine: A Point of View

SIR,—The medical profession has just emerged successfully from a trial of strength with forces which threatened to discredit it. It may claim at least to have won the first round in a fight in which the whole profession was unanimous in the conviction that its cause was a just one, and in which it was supported by all responsible opinion outside the profession. In spite of this united front a very serious menace nearly threw the whole of our organization for the welfare of the public into confusion. Our opponents found the medical profession unprepared to meet their demands; they were able to say that their claim had not been considered by the profession—a point which carried weight with a jury unacquainted with the scientific precept that the onus of proof of any new theory lies with the protagonists of that theory; and in spite of the patience, skill, and industry of the British Medical Association and allied contesting bodies, acting through a few individuals, a preposterous cult was only just prevented from being granted official recognition, and the whole edifice of scientific medicine from being destroyed.

Such a close shave prompts me to urge you, Sir, to open your columns for discussion upon a question which is of even greater fundamental importance, and which must be thrashed out by the profession itself if it wishes to avoid being caught again in an unprepared position. I refer to the question of State-organized medicine. Here the voice of the profession will not, as before, speak as one, and responsible opinion outside the profession will not have the special knowledge to appreciate fully the problems involved. The public will find itself with divided loyalties, and unless, in addition to the official deliberations of the B.M.A., the question is discussed calmly and dispassionately by practitioners themselves before the threat of imminent legislation raises the temperature of the whole controversy, unwise measures may be adopted in the ensuing confusion. Every one of us who has qualified as a doctor since the war will probably have to face this problem, and we shall then wish that we had at hand to guide us the valuable help and experience of those who are now senior members of our profession.

It would seem to my untutored opinion that the whole principle of medical service wherein a doctor is paid when a patient is ill and receives nothing when he is well is wrongly conceived. It is putting too much responsibility upon the shoulders of a practitioner to expect him to choose equitably between two lines of treatment when the bread-and-butter of his family depend upon his choice. That this system has worked as well as it has speaks volumes for the integrity of the profession as a whole. No purpose can, however, be served by shutting our eyes to the fact that operations are performed and senseless theatrical treatment is vouchsafed to psychoneurotics or incurables for the sake of the fees, and until human nature is changed, or until the doctor is paid a salary for performing his proper function—that of maintaining his patients in health—such abuses, which threaten to discredit the profession in the eyes of the laity, will continue.

Many of us who have had experience of both municipal and voluntary hospitals must have been struck with the enormous disadvantages under which the latter are working. The replete and satisfied gentleman who rises to his feet at the end of the " hospital dinner " and extols the freedom of the voluntary hospitals is labouring under the same fundamental misconception as that in which it is presumed that every free-born Englishman is at liberty to fly round the world or buy the British Museum. The freedom of the voluntary hospital is a phantom which, with the increasing impoverishment of the privileged classes, becomes more and more nebulous. The advantage in service accruing to an establishment which can command public funds to the extent of having its own ambulance, of being able to afford an up-to-date *x*-ray apparatus in the operating theatre, and which can use cotton-wool instead of emasculated tow, must sooner or later be appreciated by the public.

It is doubtful whether the full benefits of modern medical science can be applied to the public apart from institutional treatment. Practitioners in close contact with their patients should as a right be able to demand the benefit of *x*-ray and laboratory investigations. Each hospital should be a centre with threads radiating out into the surrounding district, along which the results of special investigations may be sent, and by which patients requiring expert or specialized treatment may be returned to the hospital. Finally, it may be urged that if the State has a duty to perform in preserving the life and property of its people, it should also undertake the care of their health ; and such a scheme is consistent with a policy of planned economy.

As a fundamental principle of any scheme of State medical service it should be remembered that the British public may be manœuvred, but not marshalled. State-organized medicine must stand on its own merits, and should succeed because it will offer to the public better service than a system which is cramped for lack of funds and in rare instances is liable to abuse. From the financial aspect it is not necessary that the whole burden should fall upon the Exchequer. With an adequate, but not excessive, subsidy from the State the scheme could be started by enlarging the facilities for health insurance so as to include within its scope that middle class which tends to fall between two stools so far as proper medical attention is concerned. It is within the bounds of practical politics to suppose that a hundred persons of this class, one of whom in the course of a year might be liable to undergo an operation costing him £50, would be willing to pay 10s. a year each to a State-organized fund to cover this possibility and to relieve them of anxiety in that respect. Such a scheme would have the advantage of lying outside the immediate sphere of party politics, being under the direct control of the executive, and by an elaboration of such principles I believe it would be possible to build up a public health service which would outstrip any alternative system, and would be supported by the public to the betterment of its own health and to the enhancing of the reputation, status, and dignity of the medical profession.

From the foregoing highly condensed summary it will be seen in what direction my sympathies, and those of many of my contemporaries, lie ; but before these sympathies are hardened into prejudice we should appreciate instruction from our more experienced colleagues as to the feasibility and the disadvantages of such a system, hoping that when the time comes for an expression of policy in this regard we shall have no need to indulge the natural genius of the Englishman for muddling through, but have well-formulated and helpful proposals to offer, and that the possibilities and pitfalls will have been well explored in theory beforehand.—I am, etc.,

London, W., May 16th. H. J. B. ATKINS.

Tetanus and the Press

SIR,—A London newspaper—the *Daily Express*—has published under large headlines the fact that I have treated and failed to cure a case of tetanus, and I have been asked by a high academic authority why it is that my name has come into the lay press so repeatedly recently. The answer, I think, is that the words " tetanus," " fatal," and " poison " have an exciting effect upon the sensational press of this country to a degree that not readily will these organs respond voluntarily to a plea that public interests are not well served by publications which hamper difficult and trying research work.

Last week an inquest was reported on a case to which exceptional facilities and skill and unremitting effort had been brought by the nursing and medical staff of a senior London voluntary hospital. I did not attend this inquest, but my name was mentioned, and as a result I was telephoned by the editorial department of the *Daily Express* and asked for an interview. I refused to give this, and gave as my reason that it was not in the public interest that publicity should be given to a series of inevitably fatal cases of tetanus while we were trying to wrest from their study and treatment a new means of saving life.

Tetanus is rare in this country. But it is the cause of a high mortality in many parts of the world, and an improvement in its treatment is urgently needed. I believe that the treatment already evolved in the study

of half a dozen patients—an intravenous curarine drip which allayed the spasms of this last patient for twenty hours—demands that we should go on. But if every case is to be heralded by press trumpetings our work becomes much more difficult.

In the belief that serious reporting of matters of scientific interest was worth encouraging, I once gave a lengthy interview to the Press Association on the whole complex subject of curare. It was skilfully taken and appeared undistorted and almost entirely accurately in one newspaper—the *Daily Telegraph*—and in a grotesquely sensational form in every other daily and weekly newspaper in which I saw it. The public has a right to know the progress of important scientific matters. Could there not be an authentic repository of information which could be given to journals as "official," other channels being stigmatized as improper, unauthentic, or of editorial invention?—I am, etc.,

University Department of Pharmacology, Oxford, May 20th. RANYARD WEST.

Remedies New and Old

SIR,—The difficulty of which Dr. Vincent Norman complains (May 18th, p. 1053) would seem to be counteracted best by so increasing the scientific acumen of the new practitioner that he will more early be able to sift the good from the bad, and the newly suggested curriculum appears to be directed to this end. The prestige of the profession is much more likely to be injured by closing its eyes to new ideas than by any spate of letters on the breakfast table.

When one considers the enormous debt to foreigners owed by medicine and by science in general, Dr. Norman's prejudice against "unpronounceable names" seems to rank with his dislike of the newer remedies, and it certainly comes ill from a city whose abounding hospitality was enjoyed last year by so many foreign doctors, and also by myself. His other qualification "of whom no one"—by which he presumably means himself—"has ever heard" and his "committee of clinical experts" savour of the pet fallacy of this age that the value of an idea or discovery depends on the prominence of the person who makes it, whereas, of course, it resides in the idea or discovery itself.

While I admit some of the inconvenience complained of, it is probably part of the price of progress. There is no compulsion about it, and most firms are extraordinarily generous in providing ample material by which to test their claims. It is by such means that unexpected discoveries are made, and not a few most useful drugs have been originally introduced for quite different purposes from that for which they are now used. For example, avertin was originally intended as an antispasmodic in whooping-cough, and my experience in a number of cases leads me to think that a new product of the same firm, prominal, which has been introduced as an improvement on luminal, may possibly find its most distinctive use in the control of tremors of various sorts, for many of which there is at present no effective medication.

The mention of tremors reminds me that Dr. Norman's almost wholesale condemnation of organic substances suggests that he has never observed the effect of parathyroid gland on certain tremors. From personal experience, as well as clinical observation, I can assure him that it is a discovery well worth making, as also the effect of mammary gland on some cases of menorrhagia and the dramatic apparent effect of placental extract in some cases of deficient lactation—to mention some of the less used glandular products. I would like to make some remarks on his tirade against the newer hypnotics, and even try to make some constructive suggestions. However, this letter is already overlong, and I will merely suggest that the invariable courtesy of the firms concerned invites a similar courtesy on the part of the profession, and if we do not wish to try any new remedy we are in no wise compelled to do so.—I am, etc.,

Winsford, Cheshire, May 18th. W. N. LEAK, M.D.

Selenium in the Treatment of Cancer

SIR,—In spite of the attempts of Dr. A. T. Todd, Dr. F. Hernaman-Johnson, and others to rehabilitate selenium as an agent of value in the treatment of cancer, its record is one of such almost complete failure in the past that its employment can hardly be justified as a preventive measure, as is suggested by Dr. Hernaman-Johnson for post-operative breast cases (*Journal*, May 18th, p. 1052). Todd's method combines, but rather tends to confuse, two separate issues: the effects of foreign protein or metal injections on malignant growth, and the effects of small doses of *x* rays.

1. Petersen and other authorities on protein therapy have shown how ineffectual protein injection is in malignant disease—apart from some temporary sense of well-being and focal shrinkage, the disease progresses. Selenium had an extensive trial a decade and more ago, and, apart from the isolated instances of success found by any method, completely failed. (See the report of a hundred cases treated at King's College Hospital and recorded by Mr. A. S. Gillett and Mr. C. P. Wakeley in the *British Journal of Surgery* of April, 1922, p. 532.)

2. As to the effect of small doses of *x* rays in cancer, this method is neither believed in nor practised (except as a palliative in disseminated cancer) at any of the chief radiotherapy centres. The combination of selenium with *x* rays or radium was also tried (with the milder radiation then in use) by Gillett and Wakeley, and was found to be of no benefit.

Dr. Hernaman-Johnson refers to the twenty years' record of the use of selenium in cancer as if it supported his thesis, but it is almost wholly against his view. The original paper of von Wassermann, Keysser, and M. Wassermann, on the use of selenium and eosin in animal tumours (*Deut. med. Woch.*, 1911, xxxvii, 2389), gave no details of the solutions used intravenously nor of the experiments—only a general account of results, both good and fatal. In the following year C. E. Walker published that he had found both toxic and non-toxic selenium compounds of no avail in experimental tumours (*Lancet*, 1912, i, 1337). Though not as toxic as lead, selenium is highly toxic, as shown by M. M. Datnow in the study of toxic abortion (see Blair-Bell's *Some Aspects of the Cancer Problem*, 1930, p. 146): for example, "this preparation (0.1 per cent.) is very toxic," and "selenium itself is very poisonous." In patients the focal and general reactions found after subtoxic doses are similar to those found after protein—for example, milk—injections, and similarly have little or no effect on the general course of the disease in the vast majority of cases.

Further points for discussion arise in Dr. Hernaman-Johnson's letter. For example, few pathologists support Dr. Todd's "junction tissue" theory of tissue defence against cancer: it is not recognizable as a pathological entity. Nor have I found in breast cases that "as a rule at least two years . . . is allowed us between the diagnosis and removal of the primary and the onset of secondary symptoms." The time is so variable that there is no "rule": sometimes many years, but often it is six months or less. In similar cases to these latter Todd's method must surely fail, as his full course of treatment is one or two years.

Todd's attempt to reintroduce the use of selenium plus mild *x* rays may prove to be of value in some cancer groups—for example, in the often restricted and slowly

growing, but radio-sensitive ovarian solid tumours. But so far there seems little justification for suggesting its routine employment as a preventive or curative method in other, and often more rapidly malignant, types, and sites such as breast cancer. In such sites success would seem to be much more likely from the already substantially based methods of radiotherapy as developed in recent years in many centres here and abroad. In these, radical radiation, in specially devised courses of treatment, is used as an alternative, or complemental, to surgery (palliative, radical, or conservative).—I am, etc.,

London, W.1, May 18th. J. H. DOUGLAS WEBSTER.

Medical Referees and Miners' Nystagmus

SIR,—Probably many medical referees for ophthalmic cases in coal-mining areas have often felt the need for the help of a physician in dealing with cases of miners' nystagmus. These are regarded by some as exceptionally difficult cases to decide. The chief objective symptom of the disease is ocular, so that these cases are rightly assigned to an ophthalmic medical referee for decision. But at the same time the actually disabling symptoms are frequently dizziness, headache, and nervous symptoms, which hardly come within the province of an ophthalmic surgeon to measure and assess. In elderly patients, for instance, who may still have some oscillations of the eyes, the dizziness is frequently due to arteriosclerosis or other senile changes. In such a case the help of a physician's examination and advice is most welcome.

Although I had been a referee dealing with miners' nystagmus cases since 1920, it was not until three or four years ago that I realized that facilities were already provided by the regulations for a medical referee to obtain "expert assistance" in cases where he required it. Since then I have repeatedly availed myself of the opportunity so afforded of obtaining a physician's assistance in difficult or doubtful cases.

Recently I discovered that my fellow referee, who was senior to me in length of service, was not aware of the existence of such facilities in the regulations. He agreed with me that in many cases of miners' nystagmus a physician's help would be most useful to the ophthalmic medical referee. Indeed, the proportion of such cases is so great that the question arises whether it would not be advantageous to have a physician associated with the ophthalmologist in every case of miners' nystagmus.

The present procedure laid down in the regulations is for the medical referee to apply to the Under Secretary of State at the Home Office for authorization of such "expert assistance" in any case where he considers it necessary. This has never been refused in my experience. One reason why one does not ask for it perhaps more frequently is that it involves a delay of about a week before the case can be decided, and also puts the workman to the trouble of a second attendance—often coming from a considerable distance. This objection could be obviated if the regulations could be amended by permission being given to the medical referee to obtain a physician's assistance *at once on his own discretion* in any case where he considered it advisable. In one case recently where this was done without waiting for authorization to be obtained this action was approved by the Home Office under the circumstances.

In some quarters there is at present considerable dissatisfaction with the working of the Workmen's Compensation Act in cases of miners' nystagmus. I am informed that the men would have more confidence in decisions given in their cases if a physician were associated with the ophthalmic referee. Any step which may help to promote peace in this important industry deserves consideration, and I venture to hope that you will find space in your columns for this letter and any correspondence arising from it.—I am, etc.,

Sheffield, May 18th. HERBERT CAIGER.

*** So far as space permits we will give other ophthalmic referees an opportunity to express their views on the matter raised by Mr. Caiger.—ED. *B.M.J.*

Prostatectomy from the Patient's Standpoint

SIR,—As a surgeon who has recently undergone the operation of prostatectomy, I was interested to read the article on this operation as practised by Professor Andrew Fullerton, in the *Journal* of March 23rd, and with your permission I should like to comment on it from the standpoint of the patient.

One of the desiderata of the anaesthetic is that the effect of it should last for some time after completion of the operation, until the rough edge of the effect of the trauma on the nervous system has had time to wear off.

In describing how the haemostatic bag was retained under pressure for twenty-four hours the author says: "the patient usually had an uncomfortable feeling that the bladder required to be emptied whilst the bag was *in situ*." Now, Sir, there is in the region of the verumontanum an intensely sensitive area of mucous membrane, the innervation of which is not usually damaged by the operation. In normal micturition, as soon as a contraction of the bladder overcomes the resistance of the internal sphincter and urine enters the prostatic urethra, pressure of the urine on this spot causes an intense desire to micturate, which if obstructed, as in enlarged prostate, brings into strong contraction the muscles of the perineum, of the abdominal wall, the glutei, etc., causing a rise of blood pressure, a rapid pulse, sweating, etc.

The point I wish to stress is that pressure of the haemostatic bag sets up a similar train of symptoms; the sensation of an intense desire to micturate causes a reflex contraction of the associated muscles, accompanied by rise of blood pressure, which strongly militates against the natural arrest of haemorrhage and the comfort of the patient. The ideal condition of a patient after operation, where natural arrest of haemorrhage is desired, is surely one of complete muscular relaxation. Direct pressure on vessels of the size of those which supply the prostate need not be kept up for anything like twelve hours. I would respectfully submit that two hours should amply suffice for occlusion of such vessels to be complete. In my case the humane surgeon, in response to my urgent protestations, deflated the bag after eight hours or so (to my unspeakable relief), and there was no recurrence of haemorrhage.

To the comfort and cleanliness of early twelve-hourly urethral irrigation (in my case with normal saline), and to the efficiency of the suprapubic de Pezzer catheter in keeping one dry, I can abundantly testify. I have a horror of the indwelling catheter, and doubt its utility in promoting closure of the bladder wound. It is just as much an outrage to keep a foreign body in the urethra as it would be to keep one in the conjunctiva; the Hamilton Irving contrivance serves tolerably during the few days following the removal of the de Pezzer. As a result of my experience I would suggest that a liberal dose of a local anaesthetic should be injected into the region of the verumontanum before removal of the prostate, and that the haemostatic bag be deflated two or three hours after the operation.

As regards getting up on the sixth day, I would emphasize the fact that the trauma resulting from enucleating the prostate is a severe one, and I doubt whether any advantage accrues from getting up so early. Personally I should put the tenth day as the earliest.—I am, etc.,

May 8th. SURGEON-PATIENT.

The Examination of Tuberculosis Contacts

SIR,—The article under this heading by Dr. Ernest Ward in your last issue will receive an enthusiastic welcome from the Society for the Abolition of Tuberculosis Officers, which, if not yet in existence, is likely to be founded by indignant taxpayers. If "parents, teachers, health visitors, school medical officers, and practitioners" are better qualified to do the work of a tuberculosis officer, what is left for him to do? How can he justify his existence? By taking an occasional radiogram? Surely that could be done at a voluntary hospital or by any radiologist? "The practitioner should take more part in the tuberculosis campaign than at present. It is easy to destroy his sense of responsibility by assiduous departmental work." What does that mean if not that the general practitioner is to do the work of the tuberculosis officer? The troops in France had a marching song:

> "Send out the Army and the Navy,
> Send out the Boys' Brigade,
> Send out my mother, my sister, my brother,
> But for Gawd's sake don't send me."

So much in jest; but to those of us who gave some of the best years of our lives to promoting a tuberculosis service his article makes sorry reading. He is right in stating that the Edinburgh system began in 1887, and that one of the cardinal points in that system was and is the examination of contacts. For many years Sir Robert Philip played a lone hand. Alone he advocated the notification of tuberculosis, now an accepted fact. By the year 1910 he had collected a small group of pupils, who were prepared to work in order that there might be a State tuberculosis service. And work we did, for an ideal.

We judged our work largely on the proportion of contacts examined. We sought out the contacts in their homes. There is no other way of doing it efficiently. It was hard work, and to what end? That we might find those who were infected and thereby prevent infection from passing into active disease. According to Dr. Ward we were all out on a fool's errand. It is not so. We set out to discover the infected child, in the belief that in childhood it is possible to raise resistance against infection. Our weapons then were more primitive than those of to-day. If Dr. Ward had ever known the Edinburgh system he could never have suggested as an improvement—"to omit the routine overhauling of children." He confesses to six "illustrative cases" of contacts who afterwards died from tubercle. In reply to that I say that if these children, as contacts, had been tested with the cutaneous or intracutaneous test, and had then been immunized at a tuberculosis dispensary with tuberculin, or with Calmette's attenuated vaccine, they might not have died.

When a tuberculosis officer writes about "scanty radiographic pulmonary tuberculosis" (a new variety), it is right that he should be reminded that a visceral lesion in the lung must grow to 4 c.mm. before it casts a shadow.—I am, etc.,

London, W.8, May 19th. HALLIDAY SUTHERLAND.

Blood Counts after Haemorrhage

SIR,—Your correspondent who suggested (May 18th, p. 1051) that my figures of blood counts in connexion with blood reinfusion for haemoperitoneum were impossible shows commendable *naïveté* in the examination question which he asks himself, for there he answers his own argument. If he reads my article[1] he will see that the number of hours since the onset of haemorrhage is recorded, and that it is not less than six in any case, thus giving ample time for blood dilution to occur by absorption of tissue fluid. When I wrote the article I had carried out blood counts on two cases only, and these had been bleeding for twelve and twenty hours respectively. I can assure him that a patient never has a reading of 5,000,000 red cells and 100 per cent. haemoglobin by the time she reaches hospital after the acute rupture of a tubal gestation.

I would add a further point for his consideration. When blood has lain for a considerable time in the peritoneal cavity it becomes concentrated, for plasma is rapidly absorbed and to a certain extent the blood is defibrinated, so that it is not uncommon to find a count of 10,000,000 red cells per c.mm. in the blood removed from the peritoneum. Haemorrhage in cases of acute ruptured ectopic gestation is so profuse and rapid that in spite of its dilution by tissue fluid the total blood volume is decidedly reduced, as is evidenced by the collapsed veins, thready or absent peripheral pulse, and the absence of bleeding on incision.

Far from adding "normal blood to a vascular system half filled with normal blood," one adds double strength blood to a vascular system much less than half filled with very dilute blood.—I am, etc.,

Newcastle-upon-Tyne, May 19th. FRANK STABLER.

[1] *Journ. Obstet. and Gynaecol. British Empire*, 1934, xli, 768.

SIR,—May I be allowed to comment upon Dr. W. Libertson's very interesting letter (May 18th, p. 1051). He states, correctly, that after a haemorrhage no change occurs in the red cell count or haemoglobin estimation for about six hours, after which both readings drop, owing to dilution of the blood by body fluids. He then claims that both before and after an autotransfusion in cases of haemoperitoneum the readings should be the same, as the concentration of the blood has not been affected. This is presumably correct if the transfusion be carried out within six hours of the initial haemorrhage.

May I point out (1) that in the annotation on blood transfusion (*Journal*, May 11th, p. 987) it is stated that "in many cases one or more haemorrhages may precede the final haemorrhage by as much as, or more than, twenty-four hours; and that (2) many cases are not operated upon for at least six hours after the initial haemorrhage. Thus in these cases the red cell count and haemoglobin estimation have already fallen before operation, and transfusion must necessarily raise both these counts (unless dilution has also occurred in the blood extravasated into the peritoneum!). Therefore Stabler's claim that autotransfusion raises the red cell count and haemoglobin estimation in case of haemoperitoneum can thus be explained from the theoretical standpoint.—I am, etc.,

London, May 18th. W. T. ROSS, M.R.C.S., L.R.C.P.

A Link with Trousseau

SIR,—Dr. C. H. Cattle's interesting letter (*Journal*, May 11th, p. 1002), occasioned by my paper, reminds me of another link with Trousseau in the person of the late Professor A. D'Espine, the veteran Swiss paediatrist, whom it was my good fortune to meet at Geneva during the fifth International Congress of the History of Medicine in 1925, when several British members of the congress were struck by his facial resemblance to Sir Clifford Allbutt. Professor D'Espine informed me on that occasion that at an early stage of his career he had attended Trousseau's clinic at the Hôtel-Dieu, Paris, as well as that of the great British clinician Charles Murchison at the Middlesex Hospita'

As regards the advocacy of cold affusions in scarlet fever, to which Dr. Cattle alludes, Trousseau had learnt this not only from his master, Bretonneau, but, as he points out in his clinical lecture on scarlet fever, from James Currie of Liverpool, who in his "Medical reports on the effects of water, cold and warm, as a remedy for fever and other diseases whether applied to the surface or used internally" (1798), recommended its use in scarlet fever as well as in continued fevers and many other diseases. Currie's method was adopted by many of his contemporaries, among whom perhaps the best known were Willan and Bateman, whose intimate association with fevers I have illustrated elsewhere (*Brit. Journ. Derm. and Syph.*, 1933, xlv, 396).

The application of cold to febrile patients did not, of course, originate with Currie. Garrison, whose recent death in the Johns Hopkins Hospital will be deplored by everyone interested in medical history, points out that the cold pack in exanthematous fevers was used by Sigmund Hahn (1662–1742) and his son Johann Sigmund Hahn (1696–1773).—I am, etc.,

London, S.W.6, May 14th. J. D. ROLLESTON.

Treatment of Fractures

SIR,—I was a house-surgeon at Guy's in 1895. As a small general practitioner I can painfully add to the bad cases of fracture pictured by Professor Hey Groves in the *Journal* of April 20th. My little experience must be many times multiplied throughout Great Britain.

A lady, aged 55, slipped on some grease in her kitchen and fractured her left tibia and fibula just above the malleoli. She was removed to a London hospital. The fracture was "set" and placed in plaster-of-Paris; three weeks later, when it was released, the displacement was so bad that a surgeon operated. Result, gangrene of foot and amputation.

A fine young man fell from a scaffold and fractured his right humerus. As there was difficulty in maintaining alignment a right-angled thoracic splint was fitted. Perfect position, but his brachial plexus was so compressed that at the end of six months his arm is very paretic.

A naval surgeon's widow suffered a right Colles's fracture, which was duly corrected and put up in plaster-of-Paris. In three weeks the splint was removed; position was bad and the nerve supply so injured by pressure that years afterwards the hand is "very useless."

A schoolmaster injured his hand in the gymnasium. The doctor told him that his finger was "all right." He came here with a painful, crooked digit.

My experience corresponds with a letter by "A. A. A." (May 4th, p. 951). Many years ago I was locumtenent in a large Eastern town. I found that the house-surgeon in the local hospital was an L.S.A., and was practically responsible for the whole of it, as the honorary general practitioners hardly ever turned up. "A. A. A." declares that like conditions still exist. Forty years ago plaster-of-Paris, save in Croft's splints, that were split up in two days, was forbidden for fractures. We were all encouraged to handle fractures and learn "the crepitus feeling." Our surgeons taught us that restoration of function was far more important than symmetry. I agree with many of my contemporaries that massage is futile. I think bones heal much more readily when allowed slight movement at the site of fracture. Until men are more adequately trained and encouraged to handle every fracture; until plaster-of-Paris is again banned; until every fracture with displacement is inspected daily during the first ten days, when in the great majority bones are united; until "symmetry" takes a place behind restoration of function—results disgraceful to our profession will inexorably occur.—I am, etc.,

East Sheen, May 15th. VAUGHAN PENDRED.

Rare Sequel to Schick Test

SIR,—In 1923, when I was a student, the Schick test was applied to me, with a strong positive reaction. It was with interest that I observed a considerable area of cutaneous anaesthesia to develop in the lower forearm of the positive side. My impression is that I did not notice it until the mark of injection had disappeared, and that it remained for some weeks. It was as if the area had been rubbed with menthol. I remarked upon it to one or two fellow students, but they so obviously thought it was the work of imagination that I have never mentioned it again until I saw the reference to such cases in the *British Medical Journal*.—I am, etc.,

Bristol, May 20th. LYDIA M. HOUGHTON.

Bee Venom Ointments

SIR,—The clinical notes on "Bee Ointment Dermatitis" in the *Journal* of May 18th are of especial interest at the present time, when bee venom is being extensively used in "rheumatic" conditions, and when new bee products for parenteral and inunction medication are making their appearance. It is possible that bee venom may cause the development of sensitivity in the human body, but before it is concluded that skin reactions, dermatitis, or other symptoms are due to the product of the bee, it would be well to exclude the probability of these being due to substances which are added to bee venom before it is put into ampoules, or as additions to bee ointments. Formic acid, which has been extensively used in the treatment of "rheumatism," is capable of producing various reactions, and is known to be added to one bee-sting product, while mustard oil, salicylic acid, and oleo-resin of capsicum, alone or in combination, are interesting additions to bee venom ointments.—I am, etc.,

Torquay, May 20th K. R. COLLIS HALLOWES.

Treatment of Diphtheria

SIR,—May I confess that my letter in your issue of May 4th was "wrote sarcastic." In my diphtheria cases I give a small dose of antitoxin, but only in order to "clear my own yardarm." I rely upon the indicated homoeopathic remedy. If no remedy were indicated I should give antitoxin in large doses. Last week I had a case which was clinically so unlike diphtheria that I gave no antitoxin, but only the indicated remedies—phosphorus and belladonna. The child's improvement was again dramatic—and so was the mother's indignation when a positive swab consigned the child to hospital.

Homoeopathy is admittedly arduous and difficult, but in certain cases it is very simple, and this is so with diphtheria and scarlet fever. It seems, therefore, a pity that it should not be tried at one of the fever hospitals.—I am, etc.,

London, N.W.3, May 20th. RICHARD HOPE.

Amateur Cinematography

SIR,—I should esteem it a favour if you would allow me, through the medium of your columns, to bring to the notice of medical men who are amateur cinematographers that the Institute of Amateur Cinematographers has established a section devoted to medical and allied subjects, and that medical men might be interested in this service.

The Institute would be pleased to receive films for classification and criticism, and helpful advice would be offered, if desired, on either the technical or other aspects

of the subject. Where applicable, copies of original films would be made for criticism among medical men and medical bodies, and it is hoped that a useful and instructional library might be built up. Foreign workers have intimated their interest in this branch of the Institute's activities, and their observations and pictorial records should be of the utmost value. All films comprising this library will be under the control of a medical man, and due care will be taken of all films entrusted to the Institute.

I must emphasize that no charge is made, either for help or to those interested in the viewing and showing of these films, and it is felt that the researches of individual workers would not be wasted. Films and communications should be sent to me at the address given below. Receipt of films and communications would be acknowledged at the earliest possible moment.—I am, etc.,

BERNARD KAPLAN, M.R.C.S.

c.o. The Institute of Amateur Cinematographers,
Burley House, Theobalds Road,
London, W.C.1.

Obituary

T. W. H. GARSTANG, M.A., M.R.C.S., D.P.H.

Vice-President of the British Medical Association; Chairman of the Representative Body 1918–21

We much regret to announce the death of Dr. T. W. H. Garstang, who up till ten years ago had long been one of the leading figures in the central and local work of the British Medical Association, and whose transparent honesty and sterling goodheartedness won for him the respect of all with whom he came into contact.

Thomas Walter Harropp Garstang was born on July 18th, 1850, at Dobcross, one of half a dozen villages scattered over the enormous parish or township of Saddleworth, in the extreme south-west corner of the North Riding of Yorkshire. His father was in general practice there, and the late Professor J. B. Bradbury of Cambridge lived in the Garstangs' house for some time as a pupil. From the University of Oxford, where he graduated M.A. in 1875, he went to study medicine in Manchester and at St. Bartholomew's Hospital, obtaining the M.R.C.S. and L.S.A. in 1878, and the D.P.H. in 1897.

Dr. Garstang was for many years medical officer of health for the Middlewich, Biddulph, Knutsford, and Winsford Urban District Councils, and Northwich and Bucklow Rural District Councils. He joined the British Medical Association immediately after qualification, and took a keen interest in its work; from its formation in 1903 he was the first honorary secretary of the Altrincham (now Mid-Cheshire) Division, of which he became vice-chairman in 1910 and chairman in the following year. The Division started with about fifty members, most of whom he knew personally, and he made it his business to know all about the others. The last meeting he attended was in 1928, after his retirement from active life. From 1899 to 1925 he was a member of the Lancashire and Cheshire Branch Council, and president of the Branch in 1915–16. From 1908 to 1926 he was a member of the Central Council of the Association, serving on many standing and special committees, including chairmanship of the Public Health Committee for three years and of the Medico-Political Committee for six years. He had been a member of the Representative Body for twenty-two years, and its Chairman in 1928–21.

At the Annual Meeting at Nottingham in 1926, on the unanimous recommendation of the Council, Dr. Garstang was elected a vice-president of the Association in recognition of his long and faithful services, an honour which gave particular pleasure to the members of the Lancashire and Cheshire Branch, who looked upon him not only as their local leader, but almost as a father. It was a matter of much regret to all his friends and colleagues at headquarters that after that occasion he made no further public appearance.

Dr. ALFRED COX sends the following appreciation:

Garstang's death came as no surprise, for he had reached a patriarchal age, and during the last few years he was obviously failing physically and had begun to look and feel his years. Mentally, however, he was, up to the last time I saw him over a year ago, the same man that I have known for over thirty years—very definite in his opinions, very clear and precise in expressing them, wasting no words and shunning anything like sentimentality. He was always pleased to be told that I regarded him as a typical example of the hard-headed people he represented, though he demurred when one expressed a doubt that his heart was softer than he allowed it to appear. He had a great affection and a stern loyalty for the B.M.A., for which he worked incessantly from 1903, when the new constitution came in. He took to it and supported it in a way not common to men of his age and conservative type. In the Office we always knew that so far as his area was concerned we had a man on whom we could depend.

As I write I have before me a very long list of the offices he held. It is one of which any man might be proud, as he was, and when he reached the office of Chairman of the Representative Meeting even his North Country reserve temporarily disappeared, and he did not try to conceal his pride and pleasure. Being essentially a modest man he had misgivings as to whether he could handle the reins in a way which would approve him to a body which is a connoisseur in chairmanship, but he quickly gained and kept its confidence. His election as a Vice-President of the Association was a recognition which pleased him very much. He was peculiarly useful in the office of Chairman of the Public Health Committee, for he was one of the few M.O.H.s of his period who were able to appreciate the feelings of general practitioners, having been one himself. He sympathized with those who were not unnaturally alarmed at the inroads which the developments of public medicine were making in fields which the general practitioner had always regarded as peculiarly his own. In the chair of the committee he did much to make his colleagues in the Public Health Service understand, appreciate, and allow for these feelings. He was always a B.M.A. man first and a M.O.H. secondarily.

Garstang was an admirable chairman. He believed that chairmen should be seen and not much heard, but when he did intervene he was always to the point. There was nothing subtle about his methods, but his gift for lucid and dogmatic statement of a position as he saw it was invaluable. This aspect of his character comes out strongly in his letters, which were always very concise and written in a characteristically plain handwriting. I have one before me now, written in his seventy-ninth year and sent to me after his death by his executors. He says: "I am yielding to a fancy to prepare one or two letters of farewell to certain old friends and colleagues, to express my gratitude for their share in making my B.M.A. career the pleasure it has been to me." This from Garstang is equivalent to a page of compliments and thanks.

He always seemed to me a lonely man, who kept his inner self very much to himself, but nobody could have been more loyal and considerate to those whom he regarded as his friends. I shall always remember him as a fine type of the men who have given of their best in brain and heart to build up an Association which they regarded as essential for our profession and hardly less essential for the public.

SIR THOMAS STAFFORD, BT., F.R.C.S.I.

Late Medical Commissioner, Local Government Board, Ireland

We regret to record the death of the Right Hon. Sir Thomas Stafford, who was for many years prominently associated with public health administration in Ireland. He was born on May 3rd, 1857, the second son of John Stafford, of Porto Bello, County Roscommon, and after studying medicine in Dublin at the Royal College of Surgeons, he qualified L.R.C.P. and S.I. in 1882. After some experience in general practice in the dispensary district of Boyle he was appointed medical inspector under the Irish Local Government Board, and, later, was promoted to the position of Medical Commissioner to the Board. In 1898 the Dublin Royal Colleges conferred on him their honorary diploma in State Medicine, in recognition of his services to public health in Ireland. He was created C.B. in 1906, a baronet in 1913, and a Privy Councillor for Ireland in 1918. In June, 1921, Sir Thomas Stafford was elected to the Senate of the Southern Irish Parliament. At the Annual Meeting of the British Medical Association held at Swansea in 1903 he was vice-president of the Section of State Medicine.

THE LATE DR. JOHN GAY

Sir D'ARCY POWER writes: The death of my friend Dr. John Gay, of whom a notice appears in your issue of May 11th, calls to mind the stormiest period in the history of the [Royal] Free Hospital. His father—also John Gay—was elected surgeon to the struggling charity after a severe contest in 1836, and continued with ever-increasing success until 1853, when he was dismissed by an arbitrary act of the governors at a crowded meeting, the voting being two to one against him. The assigned reason was that he had allowed a laudatory biography to appear in the *Medical Circular*. His removal gave a step to T. Wakley, son of the Editor of the *Lancet*. The affair was the cause of much excitement at the time. It was felt that Gay had been badly treated, and he was given a public banquet. It did him no harm in the end, for he was elected surgeon to the Great Northern Hospital, invented an operation for the relief of femoral hernia, served on the Council of the Royal College of Surgeons, and died in 1885, greatly beloved for his high spirits, enthusiasm, and impetuosity.

John Gay, his son, served as one of my dressers at St. Bartholomew's Hospital, and was one of my successors as house-surgeon to Sir William Savory, with whom his father was on friendly terms, as they were colleagues at the Royal Free and at the Royal College of Surgeons. Like his father, "Johnny" Gay was a charming personality, absolutely honest in thought and deed; he practised his art as a profession without a trace of commercialism. He made many friends, and helped many lame dogs over the stiles they had usually set up for themselves. He attained the position, which is rare for medical men, of becoming Master of one of the twelve great city companies—the Leathersellers. He celebrated his year of office by gathering together all his St. Bartholomew's Hospital friends at a special dinner.

The following well-known medical men have recently died: Dr. FAVREL, professor at the Nancy Faculty of Medicine, corresponding member of the Académie de Médecine; Dr. ROGER D. DENNETT, professor of paediatrics in the Columbia University, New York, and author of a work on infant feeding, aged 59; Dr. JOSEPH CLAUDE RÉCAMIER, honorary fellow of the Société de Chirurgie and author of a work on cancer of the uterus, aged 75; Dr. LUCIEN LACOMBE, doyen of the honorary physicians to the Paris hospitals, aged 90; Dr. MANUEL CARDENOS DE LA VEGA, professor of children's diseases at the Faculty of Medicine and member of the National Academy of Medicine of Mexico; and Dr. E. DELBANCO, an eminent Hamburg dermatologist, aged 67.

The Services

MEDICAL SERVICE SCHOLARSHIPS

Medical Service scholarships appear for the first time in the list of scholarship awards made by the council of the Lord Kitchener National Memorial Fund, issued on May 20th. These are awarded by the committee of the fund, in conjunction with representatives of the medical branches of the Services, to candidates who undertake, on completing their course, to apply for commissions in the medical branch of one or other of the Services. The fund received 878 applications, representing 496 schools, and 150 scholarships have been awarded.

Major-General John Weir West, C.M.G., C.B.E., M.B., M.Ch., D.P.H., A.M.S., has been appointed House Governor and Medical Superintendent of King Edward VII's Convalescent Home for Officers, Osborne, Isle of Wight, as from the date of retirement of Major-General Godfrey Tate, C.I.E., I.M.S. (ret.), in October.

DEATHS IN THE SERVICES

Colonel Richard Jennings, C.B.E., late R.A.M.C., died at Southsea on April 30th, aged 79. He was born on January 2nd, 1856, and was educated in the Royal University of Ireland, where he graduated M.D. and M.Ch. in 1878. Entering the Army as surgeon on February 5th, 1881, he attained the rank of full colonel on December 31st, 1908, was placed on half-pay on December 31st, 1912, and retired two days later. He served in the South African War in 1900–2, when he took part in operations in Cape Colony and the Transvaal, was mentioned in dispatches in the *London Gazette* of April 16th, 1901, and July 29th, 1902, and received the Queen's medal with three clasps and the King's medal with two clasps. In 1911 he was made an Honorary Surgeon to the King. He rejoined for service during the war of 1914–18, and received the C.B.E.

Surgeon Captain Richard Frith Quinton, R.N. (retired), died at Winchester on April 29th, aged 46. He was the second son of the late Dr. R. F. Quinton, and was educated at the London Hospital, and took the M.R.C.S. and L.R.C.P. Lond. in 1913. Entering the Navy soon after, he became surgeon commander on April 2nd, 1926, and retired a year ago, on March 28th, 1934, with an honorary step of rank as surgeon captain. He served in the war of 1914–18, receiving the medals. He leaves a widow.

Medico-Legal

NEGLIGENCE ALLEGED AGAINST SURGEON: ACTION DISMISSED

In the King's Bench Division, before Mr. Justice Branson, on May 15th and 16th, an action was tried in which Betty Cain, a child aged 8, through her mother, claimed damages against Mr. K. J. Acton Davis on the allegation that, several months after an operation performed by him at the Princess Elizabeth of York Hospital, pieces of gauze were expelled through the wound, having been negligently left in the body at the operation, resulting in much suffering. The defendant denied negligence.

Mr. Charles Doughty, K.C., for the plaintiff, said that the child had suffered from a form of paralysis affecting the leg, for which an operation was performed by Mr. Acton Davis in March, 1932. The child derived considerable, but not complete, benefit from the operation; she was still unable to walk. An abscess formed on the scar, for which an incision was made, and afterwards a more elaborate operation by the house-surgeon, and later still, certain trouble remaining, another operation was performed by Mr. Acton Davis, who, however, could find no trace of a foreign substance. In November, 1933, the mother found that three pieces of gauze had worked to the surface of the wound, and she was able to squeeze or pull them out. Mr. W. McAdam Eccles and Mr. E. W. G. Masterman gave evidence that in their opinion the history of the case was consistent with a foreign body having been left behind at the first operation.

Mr. T. Carthew, for the defence, submitted that the gauze could not have been left in the wound at the first operation,

for the simple reason that no gauze was used on that occasion. Mr. Acton Davis had used swabs, but not pieces of gauze, and a swab would work out of the wound completely, and not in pieces. Mr. Acton Davis himself gave evidence to that effect, and added that the operation was watched by twelve post-graduate students, who would have noticed had a swab been overlooked. Dr. S. Campbell, formerly house-surgeon at the hospital, said that *x*-ray photographs taken in January, 1933, ten months after operation, showed no trace of a foreign body in the operation wound. Mr. W. E. Miles said that the fact that the wound remained healed for six or seven months was proof of the absence of any foreign body. Asked whether he thought it possible that the pieces of gauze could have been inserted some time after the last operation, Mr. Miles said that if there were several people dressing the wound, especially someone who was not trained, he could conceive anything happening.

Mr. Justice Branson said that he was not deciding the case on any question of failure of the plaintiff to discharge the onus of proof. He was satisfied that had the onus been on the defendant to prove that the pieces of gauze were not left behind by him he would have held him to have discharged the onus by affirmative proof that they were not. He thought that the gauze got into the child's body at a date subsequent to the first operation. While it was possible that an experienced surgeon might have overlooked one piece of gauze, it was unlikely that he would have overlooked three or four.

Judgement was given for Mr. Acton Davis with costs.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on May 17th the following medical degrees were conferred:

M.D.—H. Barcroft, G. H. Day.
M.B., B.CHIR.—F. H. Coleman.

UNIVERSITY OF LONDON

At a meeting of the Senate held on May 15th, with the Vice-Chancellor (Professor L. N. G. Filon, F.R.S.) in the chair, Dr. A. St. G. J. McC. Huggett was appointed to the Chair of Physiology at St. Mary's Hospital Medical School, and Mr. J. Paterson Ross to the Chair of Surgery at St. Bartholomew's Hospital Medical College, both as from October 1st.

The Dunn Exhibition in Physiology for 1935 was awarded to R. D. Blachford of Guy's Hospital Medical School, and the Dunn Exhibition in Anatomy for the same year was divided between A. G. Apley and P. H. Wood, both of University College.

Professor Major Greenwood, F.R.S., has been elected, with Professor G. B. Jeffery, F.R.S., to represent science graduates of Convocation upon the Senate of the University.

A course of three lectures on "Psycho-analysis and Social Psychology" will be given by Professor William McDougall, F.R.S., of Duke University, North Carolina, at University College, Gower Street, W.C., on Monday, Wednesday, and Friday, May 27th, 29th, and 31st, at 5.30 p.m. The chair at the first lecture will be taken by Professor Charles E. Spearman, Ph.D., F.R.S. The lectures are addressed to students of the University and to others interested in the subject. Admission free, without ticket.

UNIVERSITY OF MANCHESTER

At a meeting of the Court of Governors on May 15th, with the Chancellor, Lord Crawford and Balcarres, presiding, a recommendation brought forward by the council after consultation with the Senate was unanimously approved appointing Professor J. S. B. Stopford, M.D., F.R.S., to be Vice-Chancellor of the University, to hold office until he has attained the age of 65.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the Royal College of Physicians of Edinburgh, held on May 7th, with the president, Dr. Edwin Bramwell, in the chair, Dr. Alexander Hay Rintoul (Crieff) was elected a Fellow of the College.

The Freeland Barbour Fellowship was awarded to R. R. Goodall.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

A meeting of the Royal College of Surgeons of Edinburgh was held on May 15th, when Dr. A. H. H. Sinclair, president, was in the chair. The following candidates, having passed the requisite examinations, were admitted Fellows: N. S. Gunning, J. A. Baty, A. J. S. L. Boyd, W. H. Chambers, R. Cochran, D. K. Crawford, H. R. Duval, H. H. Harrison, M. H. Heycock, E. A. Jack, A. L. Mackenzie, D. J. MacRae, G. B. Malone-Lee, T. L. Masterson, A. R. R. Meares, M. R. Sheridan, I. S. Smillie, E. Thompson.

The Henry Arthur Dalziel Ferns Bursary was awarded, after a competitive examination in organic chemistry in its application to medicine, to A. Weiss, as was the Ivison Macadam Memorial Prize, after a competitive examination in chemistry in its application to medicine.

The Bathgate Memorial Prize was awarded, after a competitive examination in materia medica and therapeutics, to R. Levine.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Both Houses of Parliament heard statements this week of the Government's decision to strengthen the Royal Air Force. The House of Commons read the Finance Bill a second time, and discussed the Housing Bill on report.

Mr. SHAKESPEARE announced, on May 15th, that Sir Hilton Young hoped to introduce very shortly proposals dealing with persons who had fallen out of national health insurance. Asked whether the medical side would be considered, Mr. Shakespeare replied that he could not anticipate the terms of the Bill.

Disease Carriers

Mr. GROVES asked what precautions were taken by medical officers of health to make sure that they themselves were free from infection by the haemolytic streptococcus and could not themselves carry the contagion. Replying, on May 6th, Sir HILTON YOUNG said he was advised that the best, and perhaps the only, precautions that could be taken were those measures for preserving surgical cleanliness that were familiar to medical practitioners.

Answering Captain Erskine-Bolst, on May 16th, Sir HILTON YOUNG said the number of human disease carriers about whom information was available in the Ministry of Health was necessarily small, but most infectious diseases were capable of being carried in this way and all persons might be carriers of some disease at one time or another, though not necessarily responsible for the spread of the disease. The policy of his department was that known carriers of disease should not engage in any occupation which would render them a special source of danger to the public.

About sixty-eight children in Denham council school and about ninety in New Denham council school, Mr. RAMSBOTHAM stated, on May 16th, were supplied with liquid milk during February and March, 1935. All the liquid milk at both schools was obtained from Dromenagh Farm. A form of dried milk was also supplied at Denham council school. [The cattleman who was recently isolated for streptococcal infection of the throat was employed at this farm. See *British Medical Journal*, May 18th, p. 1057.]

Paying Patients in Voluntary Hospitals

In the House of Lords, on May 14th, the Voluntary Hospitals (Paying Patients) Bill was considered in committee. Viscount GAGE explained that on the second reading the Government had expressed general sympathy with the objects of the Bill, but it felt that in granting new powers in an Act there ought to be careful provision that the original intentions of existing trusts were preserved. The Government felt that the safeguards in the Bill could and should be strengthened. It had been in close touch with the representatives of the hospitals in all matters concerning amendments and, except in one particular, there had been agreement.

Lord MACMILLAN moved to amend paragraph (2) of Clause 2 (accommodation for and charges to paying patients), to pro-

vide that the committee of management might charge such patients for accommodation, treatment, and maintenance (including such medical and surgical attendance and treatment as was given by the resident staff of the hospital) in accordance with such scale of charges as might be specified in any order made by the Charity Commissioners. He said that the amendment was designed to meet the wishes of medical associations. It was felt that provision should be made for a tariff which would cover all the expenses incurred by the hospitals. The amendment had been moved, after consultation with the British Medical Association, to remove any ambiguity with regard to fees to be charged.

The amendment was agreed to.

Viscount GAGE moved a new clause making provision for patients able to make some, but not full, payment. He said that if such patients were admitted to the free wards of certain hospitals it was doubtful whether that could be done legally, and it could not be done under certain trusts. It was obviously desirable that the hospital accommodation should be available to such persons. The clause made it obligatory on the Charity Commissioners, unless they thought it would be inappropriate in the case of a particular hospital, to reserve some accommodation for such persons. The amount to be reserved would vary with different hospitals. The scale of charges specified in an order would include charges fixed with a view to meeting the needs of patients who, though able to make some payment, were unable to pay charges sufficient to meet the full expense to the hospital.

The EARL OF DUDLEY said that, while he agreed with the necessity for the new clause, he hoped that the Government realized that the cheaper beds—for instance, the four-guinea beds for which Lord Gage was seeking to make ample provision—were largely carried by the more expensive, or ten-guinea beds. If the Charity Commissioners restricted the number of the more expensive beds it would be impossible to maintain the four-guinea beds, and the hospitals would be driven to adopt a one-standard seven-guinea bed. He hoped it would be made quite plain that there was no intention to restrict the more expensive beds.

The clause was agreed to.

Viscount GAGE moved a new clause containing provisions for the protection of existing trusts. He said that the first part of the clause, which was agreed between the Government and the promoters, indicated the conditions under which the Charity Commissioners might make an order allowing land belonging to hospitals to be used for erecting new wards or buildings for paying patients. It was provided that the use of the land was only to be authorized if the Commissioners were satisfied that it would not be required for the purposes for which the trusts were created until after the expiration of a substantial period. The second part of the clause was the only point on which the Government and the promoters had not been able to come to an agreement. As he understood it, the promoters thought that in certain cases it might be possible by rearrangement of the wards and minor structural alterations to provide extra accommodation within existing buildings for paying patients. They were quite ready to give safeguards to protect whatever number of poor patients' beds they might happen to have, and to see that none of those poor patients suffered in regard to space or treatment through this rearrangement. But they claimed, providing no reduction of numbers was occasioned, to have the right to use the new accommodation for paying beds. The Government stated that if by the rearrangement of certain buildings it was possible to provide additional beds, the poorer class of patient had the right under most of the trusts to those extra beds if the funds permitted. If any other form of words could be devised to get over the difficulty the Government would consider it very carefully. Lord MACMILLAN said he shared Lord Gage's satisfaction at the large measure of agreement which had been achieved in carrying through this very beneficial measure. He regretted that there was not entire agreement. In regard to existing buildings the clause was not really satisfactory. In many hospitals it would be possible by an internal arrangement at a relatively small expenditure to get additional space to accommodate a limited number of patients to whom charges could be made. It would not be possible to do that under the clause unless the hospital could show that it was short of funds, or that there was a shortage in demand for accommodation. Either or both of these things might be very difficult to prove in many instances.

Viscount HAILSHAM said that the Government agreed that where there were, in existing buildings, beds, these could not be diverted to other uses unless the conditions of the Bill were satisfied. Lord Macmillan and Lord Luke, however, wanted the Bill to allow the Charity Commissioners to say that where there were existing buildings, which had been erected by money provided for the express purpose of giving free medical or surgical help to the poor, these might be adapted to hold more beds than at present, and that the surplus beds might then be used for paying patients, notwithstanding the fact that there was money available to the hospital to use them as free beds, and that there were poor people, unable to pay anything, who would like to avail themselves of those free beds. Those responsible for advising the Government took the view that where buildings had been provided for the very poor people who could pay nothing, and where there were very poor people who needed the help of the hospital and there was no room for them at present, if it were possible by rearrangement of the existing building to provide extra accommodation, that accommodation was earmarked and devoted for the purpose for which the buildings were erected—that of providing free help to the poor.

Lord LUKE said he hoped that, before the report stage, the Government might find some form of words which would meet the difficulty. Viscount HAILSHAM said if the clause were allowed to pass in its present form the noble lord would not be prejudiced in any discussion which might take place between him and the Government on the matter.

The clause was agreed to, as was an amendment by Lord Luke to the effect that the Bill should not apply to Scotland.

The committee stage was concluded.

Diphtheria Immunization in Leeds

On May 15th Sir HILTON YOUNG circulated the following information, furnished by the Leeds local authority:

Diphtheria Immunization—Children under 15 Years

Year	Number of Children Inoculated	Number of those Inoculated who gave Final Schick-negative Test	Number Inoculated with Final Schick-negative Tests who Contracted Diphtheria	Deaths from Diphtheria in Leeds Children who had been Inoculated against Diphtheria
1928	92	65	Nil	Nil
1929	161	73	"	"
1930	174	152	"	"
1931	602	232	"	"
1932	1,874	1,379	6	"
1933	1,372	1,050	1	"
1934	2,773	2,225	4	"
Totals	6,988	5,127	11	Nil

Housing Bill

The report stage of the Housing Bill began in the House of Commons on May 17th. Dr. ADDISON moved a new clause to provide that no money contributions should be made under the Bill unless the Minister of Health was satisfied that the accommodation to be provided conformed with regulations, made by him and approved by Parliament, which specified minimum standards of equipment and amenity. He indicated a belief that such powers were particularly needed to control the design and equipment of flats, in light, ventilation, the size and height of rooms, and the provision of sinks and baths. Sir FRANCIS FREMANTLE said it was not advisable that the Minister of Health should dictate to the whole country by a general code. Parliament should reinforce existing provisions of the law in respect of town planning and of building by-laws. In resisting the amendment Sir HILTON YOUNG said that hopes under the Bill would fade unless the country attained a far-sighted relation of plans under the Bill to town-planning schemes.

The proposed clause was rejected by 192 to 39.

Another new clause, moved by Earl WINTERTON, proposed to set up a central housing appeal board. In supporting the proposal Sir EUSTACE PERCY said that the House must not suppose the report of the medical officer of health was the

report of an impartial authority who had never gone round the area with the chairman of the Education Committee, and had told the chairman, as they stood on the doorstep of a house, "Of course, I could condemn this house quite easily." His report was not a calm, impartial, judicial report, drawn up in a study. Lord Eustace added that he did not impugn the honesty of medical officers of health. Sir Hilton Young said that in condemning property the sanitary inspector and the medical officer of health were the plaintiffs, and their complaint was confirmed by the local authority.

Earl Winterton's proposed new clause was defeated by 138 to 47.

The report stage was resumed on May 20th. On Clause 2, which provides a definition of overcrowding, Mr. GREENWOOD moved words to enable a house to be classed as overcrowded if any of its occupants had to sleep otherwise than in a bedroom. Mr. SHAKESPEARE said that the Minister had chosen the far simpler method of fixing the maximum number of occupants for a house of a particular size. If those occupants all chose to sleep in one bed, that was no concern of the Ministry. Dr. Addison remarked that under the Bill as it stood not one dilapidated cottage out of ten in the country could be condemned as overcrowded. Sir Hilton Young said all actual movements of families under the Bill would be based on the rehousing standard, which took no account of the living room. The standards of the Bill had been fixed after examination of the conditions of the country as a whole, in consultation with many representatives of the medical officers of health.

Mr. Greenwood's amendment was defeated by 266 to 60.

An amendment was made to ensure that the overcrowding standard should not be enforced by reason of a son or daughter having temporarily rejoined the household.

Further discussion of the Report Stage was adjourned.

Dental Benefit

Captain CUNNINGHAM-REID asked Sir Hilton Young, on May 16th, whether, in view of the importance of early treatment in dental cases, especially among young persons, he would consider the alteration of the regulations whereby persons insured under national health insurance were ineligible for dental treatment until they had paid contributions over four years. Sir HILTON YOUNG answered that under the National Health Insurance Acts dental benefit was not included in the statutory benefits to which all insured persons were entitled. It was an additional benefit which might be provided by an approved society having a disposable surplus as a result of a quinquennial valuation. An insured person became entitled to dental benefit at the beginning of the third year following that in which he joined a society providing the benefit. In fixing this waiting period regard was had to the considerations referred to by Captain Cunningham-Reid, but any further shortening of the period would be open to serious objection on administrative and financial grounds, and from the point of view of equitable distribution of the surplus among the members of the societies.

Legislation on River Pollution

On May 20th Captain CUNNINGHAM-REID asked the Minister of Health if the Government had yet begun to prepare a river pollution prevention Bill, whether it was hoped that such a Bill would prove to be non-controversial, and when it was proposed to be introduced. Mr. SHAKESPEARE replied that the Minister of Health presumed the question referred to a Bill to provide for the reception of trade effluents into sewers. The state of Parliamentary business precluded any measure this session, but the Minister had in mind the case for such a measure, and, while he could not say that it would be without controversy, he hoped that the negotiations which had taken place would result in substantial agreement.

Sources of Foot-and-Mouth Disease Infection

In the House of Lords on May 21st Earl DE LA WARR, replying to Lord Strachie, said it was almost certain that the main reason why foot-and-mouth disease had spread in Dorset was the lateness in notification. The Ministry was taking active steps to deal with the matter. He agreed that there was difficulty in checking the order that hay and straw should be burned, and said that he would look into that matter. Within the last ten years there had only been three cases in which it was even suggested that hay and straw might have been implicated, and in each of those cases they had been unable to establish any proof that it was so. In the same period there were only five cases in which vegetables and fruit were suspected, and here again no proof could be established. The old suggestion had been made that the disease might come over with migratory birds. That had been thoroughly investigated. There was no regular correspondence of initial outbreaks with the migratory season. It was also frequently suggested that the wrapping material for meat might be responsible. In 1932 the Government laid it down that the wrappers should be striped with red and should not be allowed to come into contact with animals, and that they should either be destroyed or sterilized. The fact probably was that in all these outbreaks there was a great variety of causes, but it had never been possible to trace infection to any one source. A foot-and-mouth disease research committee, under the chairmanship of Dr. Arkwright, had been examining the question, and had been particularly studying immunity. It was hoped shortly to issue an interim report on the question of the source of the disease.

Chinese Eggs.—On May 13th Mr. SHAKESPEARE informed Mr. Hannon that the Minister of Health was not aware of any investigation into the food qualities of Chinese eggs imported into this country. He was advised that putrefaction did not take place immediately the eggs ceased to be in a frozen condition. Mr. HANNON asked what had resulted from an investigation promised on a former occasion. Mr. SHAKESPEARE said the inquiry was into the bacteriological content of the eggs, and the eggs were given a certificate of good character. Mr. Shakespeare further told Mr. Hannon that a resolution adopted by the National Poultry Council, at its conference at Southport on April 30th, that the import of Chinese eggs into this country was a menace to public health, and that analytical examination had proved that such eggs were produced under filthy and insanitary conditions, did not appear to have been received at the Ministry of Health or the Ministry of Agriculture.

War Pensions and Disseminated Sclerosis.—On May 14th Major TRYON told Mr. Hutchison that pensions had been granted to applicants suffering from disseminated sclerosis attributed to war service, but he was unable to state to how many, as they were not separately classified in the records of the Ministry of Pensions.

Grade "A" Milk Producers.—In a reply to Colonel Clifton Brown, on May 16th, Sir HILTON YOUNG said he was not aware that there were any counties in which milk producers were unable to qualify for admission to the list of accredited producers owing to lack of arrangements for veterinary surgeons and inspectors. A producer could qualify by obtaining from the licensing authority a Grade A milk producer's licence, and for that purpose might employ any veterinary surgeon who was nominated by the authority with the concurrence of the Minister. In nearly every county in England and Wales the county council now exercised its powers to grant these licences. Where a county council declined to do this the Minister would confer the necessary power to grant licences on district councils who applied for it. Replying to Major Carver, on May 16th, Dr. ELLIOT said the average daily quantity of milk sold under wholesale contracts during the six months ended March 31st, 1935, showed an increase of 17¾ per cent. on the average daily quantity in the corresponding period of the previous year. The quantity sold under wholesale contracts in April, 1935, was 23 per cent. more than that sold in April, 1934.

Inquests on Maternal Deaths.—On May 21st Mr. SHAKESPEARE informed Colonel Clifton Brown that the Departmental Committee on Maternal Mortality and Morbidity had considered the suggestion made at the annual meeting of the Carlisle and District Nursing Association, that inquests should be held in every case of maternal death to draw public attention to the many avoidable causes of these fatalities. The committee did not advocate its adoption (Final Report, p. 26). The committee advised that local authorities should be urged to continue the arrangements by which medical officers of

health made inquiries into maternal deaths and furnished confidential reports to the Chief Medical Officer of the Ministry of Health. The Minister of Health had taken action accordingly.

Shortage of Trained Nurses.—On May 20th Mr. R. S. HUDSON, replying to Mr. Remer, said there was some shortage of trained hospital nurses in certain places. He understood, however, that the shortage was not due to any lack of training facilities, as in the majority of hospitals the training was provided free. Mr. REMER, in his question, suggested the allocation of public funds to educate and train a limited number of suitable girls from the distressed areas as hospital nurses, either in the great hospitals locally or in the South of England.

Estimated Future Child Population.—Sir JOHN BIRCHALL, on May 21st, asked the Minister of Health if he could confirm the following estimated child population under 15 in England and Wales: 1936, 8,815,800; 1946, 6,548,100; 1956, 4,989,900; 1966, 4,200,900; and 1976, 3,362,200. Sir HILTON YOUNG replied that such estimates as those referred to must be regarded as the statistical expression of a particular choice of assumptions or predictions as to the future course of events. The course of the birth rate in this country over so long a future period was entirely problematical, and predictions with regard to it could be neither confirmed nor disproved. He was advised, however, that no less credible assumptions might be entertained according to which the figures quoted would appear to be substantially understated.

Methylated Spirit Drinking.—On May 21st Mr. LECKIE asked the Home Secretary if he had considered a communication from Dr. Percy Turner, chief medical officer of the Salvation Army, on methylated spirit drinking, and whether, in view of the facts therein described, he proposed to carry out the suggestions made for dealing with the problem. Mr. DUFF COOPER said that he had seen a copy of the *British Journal of Inebriety* containing an article by Dr. Turner, in which he suggested that changes in the denaturing of methylated spirit might be considered. The matter was one which engaged constant attention, but, on the evidence available, he was not satisfied that any alteration was expedient.

Necessitous Scottish Children and Free Milk.—On May 21st Lieut.-Colonel MOORE asked the Secretary of State for Scotland the approximate number of children in Scottish schools now receiving free milk; what proportion of the whole this number represented; and whether he was aware of the difficulties which had arisen owing to the fact that free milk could only be given to medically necessitous children and not to children who were necessitous in the ordinary sense of the word. Mr. JAMIESON replied that under the milk schemes in operation in Scottish schools 60,500 children were now receiving free milk. This was about 14 per cent. of the total number receiving milk under these schemes and 7 per cent. of the total number in the schools. Section 6 of the Education (Scotland) Act, 1908, provided that before free food could be supplied an education authority must, *inter alia*, be satisfied that the child was unable, by reason of lack of food, to take full advantage of the education provided. The method of ascertainment of this condition was left to the discretion of the education authority. All but three of the education authorities concerned reported that no difficulty such as was suggested in the question had arisen, and steps were being taken to clarify the position in those cases.

Cost of Social Services.—The total expenditure of the United Kingdom on social services in 1933 is estimated at £478,483,000, of which £42,842,000 was in respect of war pensions.

Dental Treatment of School Children.—During the year ending December 31st, 1934, children in public elementary schools in England and Wales subjected to dental inspection under arrangements made by local education authorities numbered 3,302,838. Of these, 2,272,508 were found to require dental treatment and 1,431,775 were treated under arrangements made by the local education authorities.

Notes in Brief

The Government has decided to accept the principle of unemployment insurance for agriculture.

No regulations on protection against air raids are at present contemplated.

Medical News

It was announced last week that the Trustees of the Rockefeller Foundation have promised to contribute £60,000 towards the cost of the building and equipment of the proposed institute for the teaching and study of neurology at the National Hospital for Nervous Diseases, Queen Square, London, W.C., and a further munificent sum of £60,000 towards the endowment of the teaching and research activities that will have their centre in the new building.

The People's League of Health has set up a special committee to study the influence of diet on the health of pregnant women and the relation of nutrition to maternal mortality and morbidity. It is hoped to make a thorough and wide investigation and to publish a report in due course. The office of the League is at 12, Stratford Place, W.1.

The new buildings of the Middlesex Hospital will be declared open by the Duke and Duchess of York on Wednesday, May 29th, at 3 p.m. It will be recalled that His Royal Highness laid the foundation stone of the hospital in June, 1928.

Queen Elizabeth and the King and Queen of the Belgians have consented to be patrons of the fourteenth annual congress known as the Journées Médicales de Bruxelles, which will be held at Brussels from June 29th to July 3rd on the occasion of the Universal International Exhibition. Inquiries should be addressed to the secretary-general, Dr. René Beckers, 141, Rue Belliard, Brussels.

Sir E. John Russell, F.R.S., will deliver a Chadwick Public Lecture on "Modern Changes in Food Production: Their Influence on our Sources of Supply," at the Chelsea Physic Garden, Swan Walk, S.W., on Thursday, June 6th, at 5 p.m. Sir William J. Collins will be in the chair. Admission free.

The Institute of Child Psychology announces a course of eight lectures, on "Aspects of Normal Child Life," to be given at Friends House, Euston Road, N.W.1, on Wednesdays, beginning June 5th. Particulars of times and fees may be had from the lecture secretary, 26, Warwick Avenue, W.9.

A meeting of the Medical Section of the British Psychological Society will be held at the House of the Medical Society of London, 11, Chandos Street, Cavendish Square, on May 29th, at 8.30 p.m., when a paper entitled "The Rorschach Inkblot Test in the Light of Recent Research" will be read by Mr. P. E. Vernon, Ph.D.

A meeting of the Fever Hospital Medical Services Group of the Society of Medical Officers of Health will be held at the house of the Society, 1, Thornhaugh Street, Russell Square, W.C., on Friday, May 31st, at 4.30 p.m., when a discussion on "Incidence and Management of Scarlet Fever Otitis" will be opened by Dr. Murdoch McGregor, Dr. H. S. Banks, and Mr. T. B. Layton.

The annual meeting of the Committee for Children's Moral Welfare (Holborn, St. Pancras, and Hampstead) will be held at the St. Pancras House of Fellowship, Seymour Street, N.W. (opposite Euston Road Fire Station), on Thursday, May 30th, at 5.30 p.m., with the president, Lady Hope, in the chair. The speakers will include Dr. J. R. Rees, director of the Institute of Medical Psychology. The annual business meeting of subscribers will be held at 5.30 p.m.

The following provincial meetings of Sections of the Royal Society of Medicine have been arranged: Section of Surgery, at Cardiff, June 5th, 12 noon, visit to new municipal hospital at Llandough; 2 p.m. to 6 p.m., operations and demonstrations at Cardiff Royal Infirmary. Sections of Laryngology and Otology, summer meeting at Bristol, June 14th and 15th. Section of Disease in Children, at Cardiff, June 29th.

An orthopaedic congress, organized by Professor H. L. Rocher, will be held at Bordeaux on June 7th and 8th. Further information can be obtained from the secretary, Dr. Ponyanne, Rue de Saint-Gèmes 103, Bordeaux.

The council of the Royal Empire Society has awarded its gold medal for 1935 to Sir Wilfred Grenfell, M.D., F.R.C.S., in recognition of his services to the Empire and of the excellence of his book, *The Romance of Labrador*.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that the following courses have been arranged: chest diseases at Victoria Park Hospital, May 27th to June 1st; gynaecology at Chelsea Hospital for Women, May 27th to June 8th; venereal disease at London Lock Hospital, May 27th to June 22nd. M.R.C.P. examination courses will be given as follows: chest diseases at Brompton Hospital, two days a week from 5 p.m. to 6.30 p.m., and a clinical and pathological course at National Temperance Hospital, from June 11th to 28th at 8 p.m. Other forthcoming courses include fevers at Park Hospital, Hither Green, S.E., June 15th and 16th; urology at St. Peter's Hospital, June 17th to 29th; medicine, surgery, and the specialties at Prince of Wales's General Hospital, June 17th to 29th and July 1st to 13th; cardiology at National Hospital for Diseases of the Heart, June 24th to July 6th. Clinical instruction is available daily through the Panel of Teachers.

The twenty-third Pan-Russian Surgical Congress will be held in Leningrad from June 24th to 29th, when the subjects for discussion will be: shock, pulmonary abscess and gangrene, and early diagnosis of malignant growths. Further information can be obtained from Professor N. N. Petroff, Kirotchnaia 41, Leningrad 15.

The Swiss Röntgen Society will hold its annual meeting at Montreux on June 15th and 16th. Further information can be obtained from the secretary, Dr. A. Grosjean, La Chaux de Fonds.

The Institute of Medical Psychology announces that it is now able to consider applications for evening treatment at its clinic in Malet Place, W.C.1. Owing to the large number of patients the waiting list has been closed for the past two years. Names of those wishing to attend the morning and afternoon sessions may also be submitted.

We have received the first issue, dated March, 1935, of a new periodical, the *Indian Journal of Venereal Diseases*, published quarterly in Bombay. This ninety-page journal contains a number of articles contributed mainly by Indian doctors and dealing with practical and theoretical aspects of venereology. Some thirty pages are occupied by an illustrated article by Dr. V. Govindan Nair of Vizagapatam, on the subject of post-arsenobenzol cutaneous reactions.

The issue of *Paris Médical* for May 11th shows the distribution of the medical staffs in the various Paris hospitals for 1935

Dr. F. Grundy (Inner Temple) and Dr. J. L. Moir (Middle Temple) were called to the Bar on May 15th.

The Committee of Award of the Commonwealth Fund Fellowships has made a number of appointments to fellowships tenable by British graduates in American universities for the two years beginning September, 1935. These fellowships are offered by the Commonwealth Fund of New York, of which Mr. Edward S. Harkness is president. The only award in medicine is to J. G. M. Hamilton, M.B., Ch.B., of the University of Edinburgh, to Harvard University.

On May 17th Dr. B. Holroyd, J.P., of Pannal, was elected, for the sixth successive year, as chairman of the Claro Area Guardians' Committee of the West Riding County Council—this area including the district of Great Ouseburn, Harrogate, Knaresborough, Pateley Bridge, and Ripon.

A conversazione was held at the Royal Institution on the evening of May 17th, when the guests were received by the officers in the library, and in the lecture theatre Sir William Bragg gave a short demonstration on Aeolian tones. Experiments were shown in the laboratories and workshops, and in Faraday's laboratory the high-tension electrical equipment for the giant *x*-ray tube, completed during the year and largely constructed in the Institution workshops, was on view.

The directors of Jeyes' Sanitary Compounds Co., Ltd., gave a luncheon party at the Savoy Hotel, on May 22nd, in celebration of the company's fiftieth anniversary. The guest of honour was Dr. W. J. O'Donovan, M.P.

Professor Bezançon has succeeded the late Professor Léon Bernard in the chair of clinical tuberculosis in the Paris Faculty of Medicine.

A centre of medical research, to be known as the Institute of Experimental Medicine of the Soviet Union, is to be established at Leningrad.

An international Bocconi prize of 150,000 lire is offered by the Academy of Sciences of Rome for the best work on the aetiology, diagnosis, and treatment of malignant tumours.

At the recent Congress of the German Society for the Study of the Circulation the Karl Ludwig medal was presented to Professor K. F. Wenkebach of Vienna for his work on diseases of the circulation.

The National Academy of Medicine of Spain has elected the neurologist, Professor I. M. Villaverde, to the seat vacated by the death of Ramon y Cajal.

The age limit for professors in German universities has been lowered to 65, although the Minister of Education is authorized to retain professors in their chair when he considers it useful for the Reich.

Dr. Fredet has been elected president of the Société de Chirurgie for 1935.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

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MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Income Tax

Obsolescence of Car

"J. M." was in general practice to December 31st, 1933, and acted as an assistant to March 31st, 1934, as from which date he purchased another practice. He exchanged his car on January 10th, 1934, and the obsolescence allowance has been refused on the ground that "J. M." was not then in practice.

*** The right to claim obsolescence allowance was extended to income from employments by Section 16 of the Finance Act of 1925, and in all the circumstances we suggest that a claim should be made as against "J. M.'s" earnings as an assistant during the three months ended March 31st, 1934. Depreciation can also be claimed on the new car from January 10th, 1934, onwards and for 1934-5 on the value as written down by the amount of that claim.

Assistant—Use of Own Car

"E. L." is acting as assistant in a general practice. She bought a car for £69 in August, 1934, and sold it on April 1st, 1935, for £37, buying another car for £105. The car is used professionally only on Saturdays and Sundays. What can be claimed?

*** It is assumed that "E. L." is required by the terms of engagement to provide a car for Saturday and Sunday use. In that case she is entitled to deduct from the gross earnings of the year to April 5th, 1935, a reasonable proportion of the cost of replacement—that is, £69 – £37 = £32—of the former car. The proportion will presumably have to be settled on the basis of the ratio of professional to private mileage.

Santonin and Diabetes

Dr. E. A. FREYWIRTH (London, S.E.17) writes: Is there any evidence that santonin has a beneficial effect on the carbohydrate metabolism in diabetes, and, if so, by what way does it exert its action? Actually glycosuria seems to be influenced by the drug, but I should like to know whether the blood sugar and ketosis is influenced as well. Is its prolonged administration connected with any risks, and could it be given in pill with Dover's powder?

Snoring

Mr. J. H. BADCOCK, F.R.C.S. (London, W.), writes in reply to the query published last week: If "H. N.'s" patient breathes freely through his nose he should get his dentist to make him a "mouth valve," which, with an addition of a support for the chin should it be needed, should make snoring impossible.

LETTERS, NOTES, ETC.

Strickland Goodall Memorial

The signatories to the letter printed in our issue of April 13th (p. 801) announcing the establishment of a Strickland Goodall Memorial Fund write: This fund, which is instituted to perpetuate the memory of the late Dr. J. Strickland Goodall by a lecture and medal named after him, held under the auspices of the Apothecaries' Society, is to be closed on June 30th next. Will those who feel they would like to contribute towards it kindly send their donations before that date to the Honorary Treasurer, Strickland Goodall Fund, Westminster Bank, Harley Street, W.1.

The Treatment of Syphilis

Some confusion may have been caused to readers of our editorial, "The Treatment of Syphilis," printed in the *Journal* of May 18th, owing to insufficient emphasis having been laid on the method of alternating continuous treatment as opposed to intermittent treatment. The text description of the method begins at the third paragraph after the cross-heading "II" (p. 1089)—"As an optional scheme . . ."—and concludes the article. The table printed across the upper half of the page sets out the scheme of treatment.

Jubilee Day Casualties

The total number of casualties dealt with by the accident section of the London Ambulance Service on Jubilee Day, May 6th, was 244, the highest number recorded on any one day, with the exception of the day of the "silver thaw" in 1927, when the streets froze after rain, and the ambulance service received 378 calls. On Jubilee Day no case of delay in sending an ambulance occurred, but in one instance an ambulance dispatched from Westminster station was twenty-six minutes in reaching the scene of the accident in Trafalgar Square owing to the congestion in the streets. The average time in reaching the cases from the moment of call was just over six minutes. This expedition was rendered possible by the new organization whereby the number of available ambulances can be increased from eighteen to thirty-two on emergency, the second ambulance maintained at each station being kept manned for street service if necessary. During the whole of Jubilee week in London the number of calls received was 1,180, an increase of some 300 on the corresponding week in the previous year.

"Please, Sir . . . ."

Dr. S. CHARLES LEWSEN (London, W.1) writes: My attention has been drawn to the practice in certain schools of making it a punishable offence for children to use the lavatory during class hours. I can sympathize with the teacher's efforts to check the desire of a little malingerer for a respite from Latin construction or a mathematical conundrum, even in the unsavoury atmosphere of a school latrine. I can also see the wisdom of preparing the young for the discipline of adulthood, where they will find little facility for relieving emergency calls on their natural functions, and none at all should they happen to be without a penny. Nevertheless, there must be many occasions where this brutal practice is exercised on a genuine case, making only for the alternatives of punishment or an unpleasant accident, and, because of the innocent, this regulation should be condemned most vigorously on medical grounds. I commend its notice to school medical officers, psychologists, and others.

What is Medicine?

We quote the following from an editorial in the *Medical Record* of May 1st, 1935: "However, recently we have come to the conclusion from a careful statistical study that medicine is really neither an art nor a science. In using Professor Blimpus's test, which is infallible and shows results in one hundred per cent. of cases, we have arrived at the conclusion that medicine is a business."

Treatment of Cardiac Emergencies

"G. P." (London, S.E.) writes: The article by Professor John Hay on coronary thrombosis, in the *Journal* of May 4th (p. 936), is of especial interest, as I have had success in the treatment of this condition with a formula devised and improved by myself, consisting practically of quinine and iodide in small doses. Some years ago I found that quinine sulphate and potassium iodide in small doses were useful in thrombosis generally, and I gave such a mixture as the following:

℞	Quin. sulph.	gr. vj
	Acid. phos. dil.	ʒ j
	Liq. cocci	♏ x
	Pot. iod.	gr. iv
	Aq. chlorof.	ʒ ij
	Aq.	ad ʒ vj

ʒ ij four-hourly, ex aq., p.c.

I eventually improved on this as follows—by substituting tinct. cardamom. co. as carminative for the liq. cocci, and adding a little pot. cit. if blood pressure is raised and omitting if normal or low.

℞	Quin. sulph.	gr. vj
	Acid. phos. dil.	ʒ j
	Tinct. cardamom. co.	ʒ iv
	Pot. cit.	gr. xij
	Pot. iod.	gr. iv
	Liq. strych. hyd.	♏ xxiv
	Tinct. scillae	♏ xxiv
	Aq. chlorof.	ʒ ij
	Aq.	ad ʒ vj

ʒ ij four-hourly, ex aq., p.c.

and troch. phenolis—a quarter of a lozenge after each dose—and a quarter of a grain of calomel as hepatic stimulant daily. The idea of the troch. phenolis is, like sulphocarbolate of soda, to dispel flatulence, so often a precipitating factor in the attack. My first case was fifteen years ago—a typical coronary thrombosis—verified by a cardiologist, and it was and has remained a perfect success. I think the above formula also gradually clears up any underlying coronary arteriosclerosis. In the *Journal* of May 11th (p. 988) Dr. Shirley Smith deals with the routine treatment of angina pectoris. In many cases it may be sufficient to keep the blood pressure down to a safety zone with dieting, rest, and trinitrin, and, if an acute attack comes on, possibly by amyl nitrite or the old idea of a whiff of chloroform; but if the attacks persist it is worth trying the above formula. In certain cases I have met with there has been plethora without raised blood pressure, and failing venesection for the relief of dyspnoea the following formula is useful:

℞	Sod. nitrit.	gr. ss
	Mag. carb. lev.	gr. x
	Mag. sulph.	ʒ j
	Aq. menth. pip.	ʒ j

ʒ j, t.d.s.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 46, 47, 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 236.